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A Revision of the Bombyliidae (Diptera) of Southern Africa.

By A. J. Hesse, B.Sc., Ph.D., F.R.E.S., Entomologist, South African Museum, Cape Town. (With 332 Text-figures.)



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PREFACE.

Since the time that Wiedemann (1828) and Macquart (1840) described odd genera and species from material containing South African forms, over a century ago, specimens of many South African species of *Bombyliidae* have found their way into museum collections. From a systematic point of view the accumulation of unnamed material thus necessitated more comprehensive undertakings. Among entomologists interested in *Diptera*, Loew was one of the first to devote his attention to the description of South African *Diptera* and *Bombyliidae*. His "Die Dipteren-Fauna Südafrika's, 1860" is indispensable to the student of South African *Diptera*, and as a model of descriptive accuracy and scientific clarity it has not been superseded. After Loew, occasional generic and specific descriptions were published by Rondani (1863), Bigot (1892), and Becker (1912), but another period of accumulation elapsed before any serious attention was again given to South African and Ethiopian *Bombyliidae*. This period of half a century between Loew and modern times was not only a period of settlement and economic expansion in Africa, but was also one of biological interest in that the botanical and faunistic wealth of the Ethiopian

Continent was slowly being revealed by explorers, collectors, and pioneer-naturalists. Not only did museums and institutions become enriched by the gun of the big-game hunter, but contributions by zealous and enthusiastic collectors, interested in Entomology, increased the accessions to their entomological collections a hundredfold. More comprehensive surveys of South African *Diptera* were thus made possible, and Bezzi, through a series of contributions culminating in "The Bombyliidae of South Africa (Ann. S. Afr. Mus., vol. xviii, 1921)," and "The Bombyliidae of the Ethiopian Region, 1924," carried on the work of Wiedemann and Loew to a further stage. In the last decade, however, so much collecting has been done in South Africa and so much material has accumulated that even Bezzi's revision of this family is now entirely inadequate and incomplete from a taxonomic point of view. In this and the following volume yet another attempt is made to revise the genera and species of Southern Africa. For this purpose the author has had at his disposal the large and unnamed collections of the British Museum, the Imperial Institute of Entomology, the Transvaal Museum, and the very rich collection of the South African Museum, as well as smaller collections from the Deutsches Entomologisches Institut, the Rhodesian Museum, the Albany Museum, the Durban Museum, the Natal Museum, the Agricultural Departments of Southern Rhodesia and the Union of South Africa. Members on the scientific staff of the South African Museum have also undertaken special trips to various localities in the South and South Eastern Cape, to the mountainous parts of the Western Province, to the North Western Districts, to Namaqualand, to Great Namaqualand, and to many localities in the Gouph Karoo, the Nieuwveld Karoo, the Great Karoo and the little Karoo to obtain as many specimens as possible from these regions. The expeditions of the South African Museum to South West Africa, Damaraland, Ovamboland, and the Kaokoveld during 1915–26 and to parts of Portuguese East Africa have also contributed many interesting specimens. The large collection in the Transvaal Museum includes not only a representative collection from various localities in the Transvaal but a very good collection from the Little Karoo, obtained by the late Dr. Brauns, and a miscellanous collection acquired by the

Vernay-Lang Kalahari and Bechuanaland Expedition (*see* Ann. Trans. Mus., vol. xvii, pp. 161–184, 1936, by A. J. Hesse). The rich unnamed collections from the British Museum and the Imperial Institute include material from all over the Union and some from South West Africa and Rhodesia, chiefly collected by Mr. R. Turner, Professor and Mrs. W. Cockerell, Mr. J. Ogilvie, and Miss A. Mackie.

This present revision attempts to embrace the known genera and species distributed over the southern parts of Africa from about latitude 18 or 20 to the south coast, comprising parts of North and South Rhodesia, Southern Portuguese East Africa, the entire Union of South Africa, British Bechuanaland, and the Kalahari and the greater part of South West Africa south of the Kunene River. Notwithstanding the fact that very numerous specimens were examined and studied, and that a very large number of new species and some new genera are described, there is no doubt that this vast area still contains numerous undescribed and unknown forms, and that our Bombyliid fauna is in reality far richer in species than any revision at present can embody. In such an extensive area, comprising all possible types of ecological environments and great stretches of little known, barren or inhospitable, wooded or mountainous regions, even organised collecting, continued for many years, can but acquaint us with comparatively few of the actual number of species. Even more significant is the fact that the greater part of Southern Africa is subject to periodic and usually transient manifestations of insect life dependent upon favourable climatic and environmental conditions, which do not necessarily follow an annual or regular and rhythmic cycle but which may follow sudden or erratic rainfalls or storms, sometimes after long periods of drought and dessication. The collector of insects in the Great Karoo, the Little Karoo, the Nieuwveld Karoo, Namaqualand, the greater part of Bechuanaland, the Kalahari and South West Africa cannot obtain a representative collection of the indigenous fauna by merely undertaking trips during the more propitious seasons, such as spring and summer, but has to take many climatic factors into consideration which are at present metereologically unpredictable and which may either elicit a sudden and transient profusion of plant and insect life or inhibit their appearance for long periods.

Notwithstanding these remarks, this revision aims at being more comprehensive than any other work dealing with the known South African forms and purports to be unique for this family in that the male genital apparatus or hypopygium of practically every known South African species of which the male is known is figured or described. The text is thus very long, and if the descriptions and keys appear to be unnecessarily long and involved the author wishes to beg the patience of systematists and to point out that such a procedure is often unavoidable in a family where generic and specific differences are often very subtle and where it is in many cases extremely difficult to determine and separate species by the old type of abbreviated descriptions. The keys and arrangement of the species are not in accordance with any natural or evolutionary scheme but merely one of convenience, and if this revision will enable students of *Bombyliidae* to identify and recognise the various South African forms at least part of the object in compiling it will have been achieved. It is also hoped that all the free-hand drawings and illustrations, many of them in outline, made by the author himself, will enable those interested in these insects to recognise and distinguish the structural and specific differences which they attempt to portray.

Acknowledgments.

In conclusion, I wish to express my indebtedness and obligation to the Research Grant Board of the Union of South Africa for having very kindly assisted me financially in the form of a grant, without the help of which supplementary investigations in various localities would not have been possible. My indebtedness and thanks are also due to all those persons who have been so kind as to entrust the unnamed material under their charge to my care. In this connection I particularly wish to mention Dr. N. Riley, Keeper of Entomology in the British Museum, Dr. F. Edwards and Mr. H. Oldroyd of the British Museum, Sir Guy A. K. Marshall, Director of the Imperial Institute, Dr. Walther Horn, Director of the Deutsches Entomologisches Institut (Berlin-Dahlem), Mr. C. Swierstra, Director of the Transvaal Museum, Mr. G. van Son of the Transvaal Museum, Dr. G. Arnold, Director of

the Rhodesian Museum, Dr. J. Hewitt, Director of the Albany Museum, Dr. R. Lawrence, Director of the Natal Museum, Mr. E. Chubb, Director of the Durban Museum, Mr. H. Munro, Entomologist in the Union Department of Agriculture, and Mr. A. Cuthbertson, Entomologist in the Rhodesian Agricultural Department. A special vote of thanks is also due to my colleagues Dr. K. H. Barnard, the Assistant Director of the South African Museum, to Dr. L. Boonstra, and especially to Mr. C. Thorne, for their kind co-operation in the collecting of a very large number of species.

General Introduction.

Definition of Bombyliidae.

It is almost superfluous to recapitulate the diagnostic characters of this family when detailed definitions have been given in turn by Loew (p. 173, Dipt. Faun. Südafr. i, 1860), Becker (p. 421, Ann. Mus. Zool. Acad. Imp. St. Petersb. xvii, 1912), Brunetti (p. 173, Faun. Brit. Ind. Diptera Brachycera, vol. i, 1920), Bezzi (p. 1, The Bombyliidae of the Ethiopian Region, 1924), Roberts (p. 91, Proc. Linn. Soc. New South Wales, Australian Bombyliidae, liii, part 1, 1928), and by Engel (pp. 1–7, Die Fliegen d. Pal. Reg. Lief. 65 (Bombyliidae), 1932).

The chief characters of the family are:—

Body assuming a variety of shapes, being either short, plump, and bee-like, or elongate and cylindrical and even very elongate, sometimes mimicking or assuming the body-shape of other *Diptera*, such as Therevids, Empids, Asilids, Syrphids, and Conopids or even that of Aculeate *Hymenoptera*, such as Sphegids and Vespids; integument may be entirely dark or black or there may be spots, stripes, bands or abdominal bands of yellow, reddish yellow, brownish or even whitish; it may show a metallic or submetallic bluish sheen; it may be smooth, minutely punctured, or even with more coarse puncturation or sculpture on certain parts; pubescence usually present and well developed, the majority of species being hairy, almost absent in a few, usually composed of dense, fine, erect or semi-erect hairs, sometimes inter-

mixed with stouter bristles, bristly hairs, or even macrochaetal bristles on definite parts, especially frons, thorax in front, sides of thorax, on mesopleuron, on post-alar calli, across hinder part of scutellum and across hind margins of abdominal segments, with fine, hair-like, depressed and sometimes dense scales sometimes present and with broader, flatter and often denser scaling in some forms, sometimes denser and more concentrated on thorax above, sides of abdomen or across hind margins of abdomen and venter, on body below and on legs, with slaty grey or greyish pruinescence or bloom or dust on the body in a large number of species. *Head* usually large, usually as broad as thorax, sometimes even slightly broader, usually globular, but sometimes slightly elongated; occiput either flattened or slightly concave or even convex, inflated, bilobate above and with a deep concavity; ocelli three in number, very rarely reduced, usually situated in a triangle on a slight elevation on vertex; frons usually broad in ♀♀, usually much reduced, small and triangular in ♂♂ (where eyes are in contact above), usually slightly convex from side, rarely sunk in, very often with a distinct or an indication of a central groove, usually transversely or foveately depressed anteriorly in ♀♀ especially; face in profile varies from being moderately conical to very prominently conical, or it may even be scarcely evident; it may be well demarcated from antennal insertions, and in a few cases it may be tumidly inflated and convexly continuous with the frontal part; it may be smooth and shining or smooth only centrally, or it may be densely covered with hairs or scaling or even with a brush of dense hairs; buccal cavity always well developed and deep, usually with carinate or sharp edges, separated from inner margins of eyes by a furrow or groove-like depression, which is very variable in distinctness, sometimes almost entirely wanting, sometimes only present as a faint foveate depression, and sometimes long and groove-like; genae absent or present or absent lower down on facial region, with or without pubescence or scaling; eyes large, convex, bare, faceted, the upper facets in ♂♂ of numerous species distinctly coarser than lower ones, the upper coarser ones either gradually merging into lower ones or well marked off from lower ones, with the hind margins of eyes either straight, slightly sinuate, or even with a distinct emargination, with the eyes in one division of Bombyliids bisected by a line or with an indication of a bisecting line, the eyes in contact or contiguous above on vertex in ♂♂ or narrowly or even broadly separated in some ♂♂, separated above in ♀♀, very rarely in contact, their inner margins usually diverging anteriorly on each side of frons even if only slightly; antennae porrect,

close together or separated, variable in length, either 3- or 4-jointed, with or without a distinct terminal element or style, but sometimes even with 2 or 3 distinct, separately visible, terminal elements, with some of the antennal joints sometimes markedly incrassate or thickened, with the third joints rod-like, club-like, spindle-shaped, ovoid, or modified and clavate or excavate apically in some forms, with fairly dense pubescence or scaling on the first joints in majority of species and sometimes also with longish hairs or scaling on the third joints; proboscis short and stoutish or very long and slender, with the labella fleshy or hard and horny, the labial part and labella may sometimes be covered with fine spines; palps usually 2-jointed, but apparently single-jointed in many forms and even distinctly 3-jointed in a few; the apical joint may be thickened and clavate, and both joints may be covered with conspicuous hairs or scaling and may be very prominent.

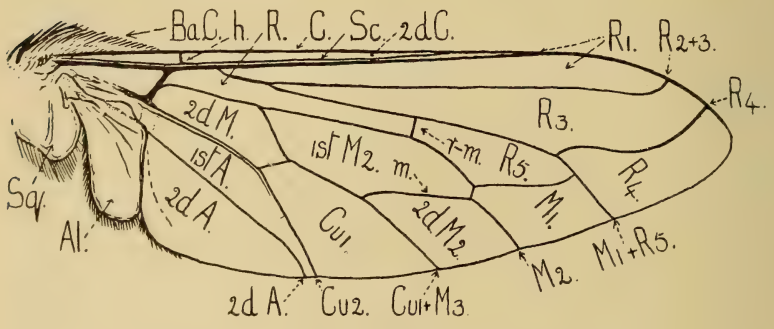
Thorax subquadrate or quadrate, broadest behind, flattened, slightly convex or sometimes distinctly humped; pronotal part usually below level of the well-developed mesonotum which abuts on occiput; in *Toxophora*, however, the pronotal part is conspicuous and in the form of a distinct collar; scutellum usually fairly large, subtriangular or semicircular, flattened but more usually slightly tumid, very rarely emarginate or bilobate posteriorly, the hind border usually with bristly hairs or stoutish bristles; pleurae high in some species (with humped thorax), the metapleurae bare in some genera but usually with some hairs or scaling, with a distinct metapleural tuft of bristly hairs in majority of forms. *Wings* (cf. text-fig. 1 of a *Bombylius*, semidiagrammatic) and their venation are very important in the separation of genera and even species. Throughout this revision the old type of terminology, used by Loew, Williston, Osten Sacken, Bezzi, and also used by many dipterists of the old school, is also used by me for the sole reason that it is more comprehensible to the amateur and student. Compared with the more scientific terminology of Comstock, the various veins and cells alluded to in the text are as follows:—

Costal vein	—Costa—C.
Subcostal vein	—Subcosta—Sc.
First longitudinal vein	—Radius one—R_1.
Second ,, ,,	—Radius two and three—R_{2+3}.
Third ,, ,,	—Radius four and Radius five—R_4 and R_5.
Fourth ,, ,,	—Media one and Media two—M_1 and M_2.
Fifth ,, ,,	—Media three, Cubitus one, and Cubitus two—M_3, Cu_1, and Cu_2.

Sixth longitudinal vein —Second Anal—2d A.
Humeral cross vein —*h*.
Discal cross vein —Radio-medial cross vein—*r-m*.
Vein between discoidal and third posterior cells —Medial cross vein—*m*.

Costal cell	—2d C.	Second basal cell	—2d M.
First basal cell	—R.	Second posterior cell	—M_1.
Marginal cell	—R_1.	Third ,, ,,	—2d M_2.
First submarginal cell	—R_3.	Fourth ,, ,,	—Cu_1.
Third ,, ,,	—2d R_3.	Anal cell	—1st A.
Second ,, ,,	—R_4.	Axillary cell or lobe	—2d A.
First posterior cell	—R_5.	Alula	—(Al.).
Discoidal cell	—1st M_2.	Squama	—(Sq.).

The wings of *Bombyliidae* are characterised by not having cell M_3. They are either with or without 4 posterior cells (R_5, M_1, 2d M_2, and



TEXT-FIG. 1.—Wing of *Bombylius* (semidiagrammatic).

Cu_1), usually with a discoidal cell (1st M_2), only a few without it, with 2 or 3 submarginal cells (R_3 and R_4), rarely with only 1, with the second longitudinal vein (R_{2+3}) arising from third longitudinal vein (R_4 and R_5) either near the base and acutely or a good distance away from base and at right angles, with the vein (R_4) between submarginal cells in many cases also arising at right angles from $M_1 + R_5$ and there provided with a short stump, with the first and second basal cells (R and 2d M) sometimes equal in length but usually with R longer than 2d M, with the discal cross vein (r-m) either before middle, at middle, or beyond middle of discoidal cell (1st M_2), with the first posterior cell (R_5) and anal cell (1st A) either open or closed and acute apically and provided with a stalk of variable length, with the axillary

cell or lobe (2d A) either broad and triangularly lobate or narrow, with the alula (Al.) either broad and lobate or very much reduced, being vestigial or almost wanting, with the squama (Sq.) usually well developed and fringed with hairs or scales, with a distinct basal comb (Ba C.) developed in many species, but almost or entirely absent in numerous species; wings themselves either hyaline, vitreous hyaline, greyish hyaline, spotted, mottled, fenestrated, banded, or infuscated; halteres usually with slender stalks and oval, but sometimes slightly apically truncated or excavated knobs. *Abdomen* with 6–9 visible segments, the visible ones on ♂♂ usually one less than in ♀♀, with the terminal elements or segments in ♂♂ modified into the hypopygium and attendant structures, with the genitalia of the ♀♀ sometimes provided with a row of spines on each side and sometimes also with the last sternite in ♀♀ slightly modified or elongated to lodge the genital lamellae, with the abdomen itself variable in shape, either oval, rotund, straight-sided, conical, tubular, elongate, and in one subfamily even pedunculate. *Legs* with the hind ones usually longer than the others, with the coxae, especially the front ones, sometimes elongate in conjunction with high pleurae and a humped thorax; femora with or without hairs, these when present usually longer and denser in ♂♂, usually with scaling, with or without a row or a few spines below, often with only spines on hind ones, with or without apical and lateral spines; tibiae with distinct rows of spicules or spines, sometimes very strongly developed, but in some forms poorly developed, minute and almost absent, with strongly or poorly developed apical spurs, one or a few of which sometimes more developed than the others; tarsi with the front ones in some ♀♀ slightly thickened; claws usually well developed, either sickle-shaped, rapidly curved downwards apically or almost straight or feebly curved; empodium usually very poorly developed, vestigial and in form of a short bristle, but sometimes quite distinct as a visible spine; pulvilli either well developed, broad or narrow, and extending to middle or beyond middle of claws or much reduced and confined to base of claws, or in some, especially in ♀♀, vestigial or even wanting.

Hypopygium.—The hypopygium of the ♂♂ in this family has not been studied or figured to any extent by previous authors, and the attempts at describing or portraying them, in the literature at my disposal, are very unsatisfactory. Becker (pp. 193–227, Ent. Zeit. Berl., vol. 1, Pl. VI, figs. 8 and 9, 1905 (1906)) first made an attempt at describing the genitalia of *Usia*. Copello in 1932 (p. 118, Rev. Soc. Ent. Argentina, vol. v) reproduced a drawing of the genitalia of

Hyperlonia morio. The only attempt, however, at describing and figuring the ♂-hypopygium is a large number of illustrations, chiefly of *Bombylius*, *Usia*, *Geron*, *Anastoechus*, *Lomatia*, *Aphoebantus*, *Anthrax*, *Satyramoeba*, *Spongostylum*, *Exoprosopa*, and *Thyridanthrax*, made by Engel in Lieferungen, 65, 67, 69, 87, 91, 99, 101, and 105 of his "Die Fliegen d. Pal. Reg. (Bombyliidae) 1932–36." Most of the authors merely refer to the hypopygium, in their synopsis of the family, as a genital structure or organ of the male sex. None of them have considered this structure as of sufficient importance to merit a detailed description or portrayal, and its diagnostic value in the separation of genera and species has scarcely been considered. Weshé in his studies of the genitalia in both sexes in *Diptera* (pp. 339–383, Trans. Linn. Soc. Lond. (2nd Ser. Zool.), vol. ix, pls. 23–30, 1906) does not include the genitalia of *Bombyliidae*. Brunetti (p. 173, Faun. Brit. Ind. Diptera Brachycera, vol. i, 1920) is content with the statement that the genitalia of *Bombyliidae* are inconspicuous. Engel, notwithstanding his large number of very unsatisfactory drawings of the male genitalia of several genera and species, commits himself to the following statement: "Zur Unterscheidung von Arten sind diese Genitalanhänge in den wenigsten Fällen zu gebrauchen, da sie meist von langer Behaarung verdeckt sind." Both Becker and Engel are in many cases very brief and vague, and in some cases apparently paid more attention to the lateral processes of the last sternite (tergite), which encloses and surrounds the hypopygium, than to the essential hypopygial structures themselves. As is evident from all the illustrations in this revision, the hypopygium is sufficiently and morphologically distinct in most genera and species to warrant its study and portrayal as a means of separating the genera and a very large number of species in this family. As in the case of *Culicidae* and other dipterous families, a description and portrayal of all the male genitalia of Bombyliids are thus important and essential, and the female genital apparatus, not studied in this revision, will probably prove to be equally important.

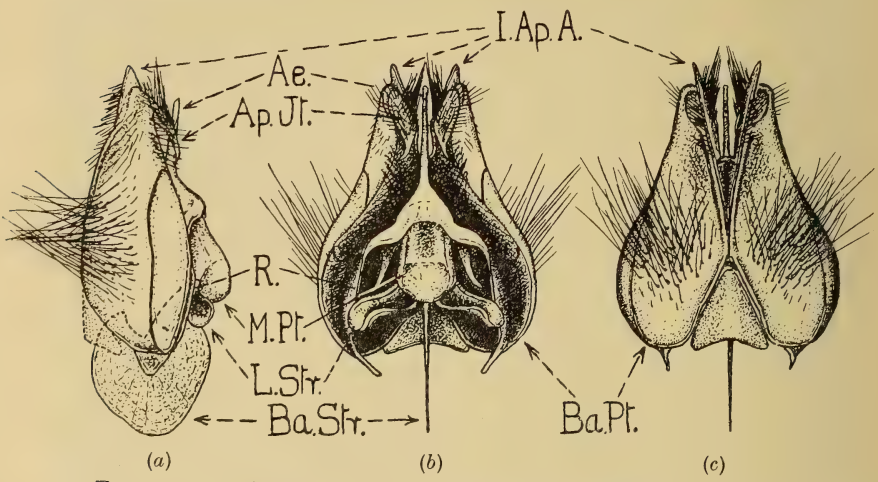
The hypopygium of the male in this family may be conveniently studied by snipping off the last two or three abdominal segments and leaving or boiling it for some time in a weak solution of NaOH or KOH, when all the musculature and attendant nonchitinous tissues will be dissolved away. The hypopygium proper may now be easily removed from the other segments by means of needles under a dissecting microscope. This should be done under water, and the hypopygium, in by far the majority of species, can itself be better studied under

water. The structure is predominantly chitinous and can also be studied dry by simply gumming or gluing it on to a card. A mount in Canada Balsam or on a glass slide under a cover-slip is not necessary and is not to be recommended unless the detailed study of micro-sculpture is necessary. The minute hypopygium of very small species (*Cyrtosiinae*) may be mounted in glycerine jelly and studied under a more powerful microscope by transmittent light. This process is, however, very unsatisfactory for most other Bombyliids in that it confines a view to one plane only, and the stereoscopic or spacial relation of one part or structure of the hypopygial complex to another cannot be so easily made out. By rotating and moving the entire structure under water, views from all possible angles can be obtained. Two or three quartz grains (sand) can be used to retain the hypopygium in the desired position. Free-hand sketches and a description of the parts can thus be easily made under a fairly powerful binocular microscope. By gumming the dried hypopygium on one of its sides to a card, different views can also be obtained. Allowance must, however, be made for a certain amount of shrinkage in such dried and mounted specimens. The essentials are, however, not affected in even the dry and slightly shrunken state. A dried mount may be restudied again by simply boiling it in water or dilute NaOH.

As in the case of most *Diptera*, the hypopygium of the ♂♂ seems to be associated with the ninth abdominal segment, but the author wishes to express no concise opinion as to the exact segmental significance, derivation, and homology of the male genital structures in this family. These structures are merely dealt with from a structural point of view and not from the developmental aspect. The hypopygium or male genital apparatus of this family is often a very complex structure, the separate parts of which are difficult to correlate or homologise with similar structures of other *Diptera*. In order to designate homologous structures in the various families, detailed developmental and embryological studies have to be carried out on the abdomen of all the *Diptera*. In the case of *Coleoptera* and *Lepidoptera* there is to a certain extent some uniformity of structure and pattern, which enables us to correlate and homologise certain basic structures in one group with those in another. In *Diptera* this is by no means the case, and if we consider the structures present in male *Culicidae* and attempt to correlate them with those of males of *Glossina* or with those of *Bombyliidae* or *Tipulidae* we find that we are confronted with a problem of homology which may lead to confusion. In as far as the structures under consideration are not obviously

homologous a non-committal terminology is adhered to throughout this revision.

The chitinised structures (cf. text-fig. 2, *a*, *b*, and *c* of *Bombylius lateralis*, and of all the other text-figures of male genitalia in this paper), constituting the hypopygium, are usually composed of two basic, independently immovable, symmetrical, shell-like elements, one on each side, convex on one side and hollowed out on the other, which are throughout referred to as the basal parts (Ba.Pt.). These parts may correspond or be homologous to the so-called claspers or coxites



TEXT-FIG. 2.—(*a*) Side view of hypopygium of ♂ of *Bombylius lateralis* F. (*b*) Ventral view, and (*c*) dorsal view of same.

of some other *Diptera*, but in the *Bombyliidae* they are not segmentally attached externally to the terminal abdominal segments but are usually partially or completely enclosed by the visible last tergite and sternite. They may be considered as partially internal in position and, if homologous to claspers, as similar structures which have migrated inwards. These parts may be symmetrically and partially separated, and not entirely separate as in case of claspers, by a central groove-like impression or suture on the convex side, or they may be undivided, constituting a single structure. The apparently separate parts of the former type are, however, not independently movable. Towards the apical part each half, or the apical part of the undivided type, is usually narrowed into a sort of neck region, the inner or outer margins of which may be produced apically into an inner apical prominence or process (I.Ap.A.), or an outer process. The inner one

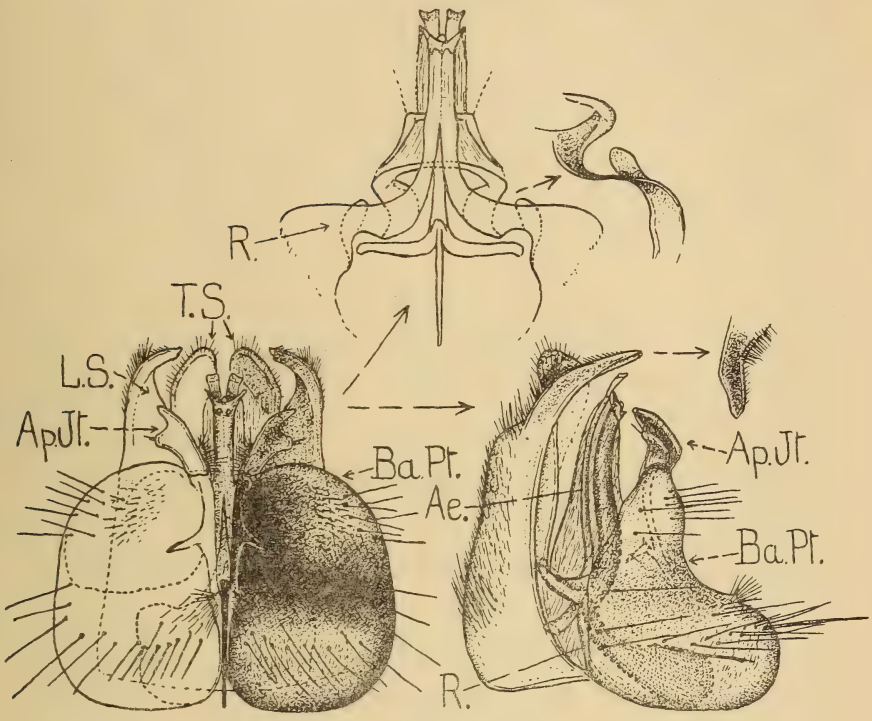
may be covered with a row of hairs or bristly hairs. The integument of the basal parts may be smooth or minutely punctured and setiferous, or it may be provided with bristly hairs or even longish hairs on the convex side or towards apical part in neck region. Basally each basal part may also be produced into a lobe or process. Apically each basal part, in the majority of forms, is usually provided with a separately movable joint, which is referred to as the beaked apical joint (Ap.Jt.), and which may represent the styles of some other *Diptera*. This joint in some genera, such as *Geron*, *Amictogeron*, and *Pseudoamictus*, may be represented by an apical, more or less immovable, process or lobe. The beaked apical joints assume a variety of shapes and they may be short, broad, oval or elongate, and cylindrical or leaf-shaped, triangular or bird-head shaped. They may be flattened or hollowed out above, or they may be convex above. Apically they may end in a sharp, pointed beak, either directed downwards or outwards, or even upwards. Sometimes no beak is present, and sometimes a subapical process or accessory beak may be present. The beaked apical joint may be more ridged or convex along its inner side above and there provided with a row of spine-like bristly hairs or a tuft of short or even longish bristly hairs.

Lodged inside the cavity of the basal parts is the true aedeagal apparatus or complex (shown in profile, from below or above in many of the illustrations). This apparatus is attached or joined on to the basal parts on each side not only by means of membranes but also by a chitinous band or connecting chitinous strand, referred to as the ramus (R.). By this ramus the aedeagal complex is kept in position between the basal parts. The ramus from each side either coalesces with its partner at the middle to form a bell-shaped or rim-like part from which arises the apically directed aedeagus (Ae.). The aedeagus itself is also variable in shape, and it may be long, slender, curved or straight, short, tubular or spout-like; it may be hook-shaped, and in some forms it may even be scarcely evident. Ventrally to it (i.e. away from concavity of basal parts) and towards the base of it, the combined rami, or base of aedeagus and the rami, may be produced apically into a ventral aedeagal process (V.Ae. Pr. or Ae.Pr.), or even into two such processes, one on each side. This ventral aedeagal process, where present, may assume various shapes of specific importance, and may even be sometimes very intricate, complex, and elaborate. Towards and in the concave part of basal parts the aedeagus may be prolonged towards the base on each side into a prong, strap, or process (P.Str.), which may be

visibly projecting basally behind and beyond the other structures of the aedeagal complex. The middle part (M.Pt.) of the aedeagal complex usually fits into the aedeagal part, and is a conspicuous part in most Bombyliids. Towards its thicker base on each side there is a shoe-horn or tongue-shaped, flattened sclerite, referred to as the lateral strut (L.Str.), which is also variable in its shape and size, but is almost always slightly hollowed out on the side away from the concavity of the basal parts. These lateral struts are usually somewhat twisted. Medially and joined on to the middle part, towards the concavity of basal parts and just between the lateral struts, is a peculiar, basally directed, chitinous sclerite, referred to as the basal strut (Ba.Str.). This structure arising from a narrow, more deeply coloured, chitinous base is usually extremely laterally compressed, flattened from side to side, appearing linear from above or below, but in profile it is broad, fan-like, racket-shaped, bat or chopper-shaped (cf. side views in the illustrations). Only rarely has this basally directed strut any lateral or dorsal extensions or processes.

In addition to these essentials, the aedeagal apparatus may also have accessory and symmetrical structures on each side, such as prongs, curved spines or hook-like structures (cf. the hypopygial structures of the *Geroninae* and *Systropinae*). A reference to the numerous figures, drawn from two or three different views and in the majority of cases of either the left or the right half of the basal parts, will acquaint the reader with the essential fundamentals more than detailed descriptions. Throughout this paper, unless otherwise stated, the convex side of the basal parts is considered as dorsal, for in a large number of forms this side is directed towards the dorsal aspect of the abdomen. In many forms, however, the hypopygium seems to be reversed in position, the concave side, which lodges the aedeagal apparatus, being directed to the true dorsum of the insect, and in other forms it is even directed laterally. Enclosing the aedeagal complex, on the opposite side to that of the basal parts, is the last apparent sternite (or tergite if structures are reversed) to which is attached apically on each side a small triangular, or subtriangular, terminal plate (T.S. and T.T.). These plates, which probably correspond to terminal elements of a segmental nature, are pretty uniform, but in some forms they may also be of specific value in the separation of species (see *Systropinae*). The last sternite (L.S.) is attached to the base of basal part on each side and also by means of membranes. In the majority of Bombyliids it is also very uniform in structure and shape, only the apical margin being either truncate, slightly or much

produced or even emarginated, and the apical angles may also vary, sometimes being acute or even prolonged. In some forms, such as the *Usiinae* (cf. text-fig. 3 of the Palaearctic *Usia versicolor*), *Systropinae*, and *Toxophorinae* (cf. text-figures under these subfamilies), the last sternite, which is sometimes dorsal in position, is of taxonomic im-



Text-fig. 3.—Hypopygium of ♂ of *Usia versicolor* F., showing ventral and side views, and above a view of aedeagal armature.

portance in that it may be produced or very much prolonged on each side into a spine-like, prong-like, or even hooked process (L.S. and T.P. in illustrations), which may act in conjunction with the hypopygium during copulation.

The mechanical function of the various structures concerned in the sexual act is not known, but, judging from their position in the ensemble, there is reason to believe that the beaked apical joints or processes open the vaginal aperture by an oblique, downward, and outwardly directed movement and, when locked or closed in this position, also act as anchors or grappling organs. The aedeagus is an

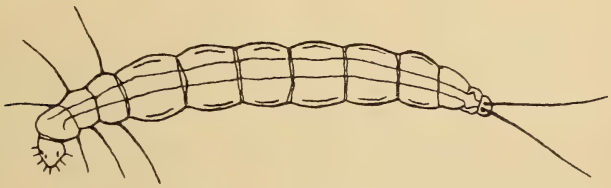
intromittent organ, acting as a guide for the penis proper and the seminal duct inside it. The accessory structures or ventral aedeagal processes, when present, may also act as supplementary grappling organs or guides. The basally directed dorsal processes of the aedeagus constitute centres for the attachment of muscles, which probably control the movements of the aedeagus. The lateral and basal struts, to which strong muscles are also attached in the living insects, probably control the movements of both the middle part and the aedeagus. A slight push on the flattened basal strut tends to push the aedeagus hindwards and also obliquely downwards away from the beaked apical joints. In the subfamilies *Geroninae* and *Systropinae*, where the hypopygial structures are very complicated, it is very difficult to predict the probable mechanical significance of the various accessory structures.

The genitalia of the females have not been studied in this revision and they appear to show more uniformity, but there is no doubt that dissection and treatment of these parts will also reveal generic and specific differences. Females belonging to the *Bombyliidae Tomophthalmae* usually have a row or brush of stoutish bristles or spine-like bristles or even recurved hooks on each side of the genital plates. In the case of *Systropus* the last sternite may be prolonged or produced, sometimes even modified into a shining, horny, spine-like process. In all Bombyliids the male and female are joined end to end during copulation, and in this position they are able to fly in either direction.

Biological and Ecological.

Life History.—The life histories of comparatively few Bombyliids are known even from other parts of the world, and only about seven or eight life histories are partially known from Southern Africa, and to these reference is made in the text. From the comparatively little that is known it is, however, accepted by all authors that the *Bombyliidae* are parasitic or predaceous in their larval stages, feeding on the eggs, larvae, and pupae of other insects. According to a compilation of Bezzi (pp. 10–12, " The Bombyliidae of the Ethiopian Region," 1924) from the known facts, the larval stages of *Bombylius* parasitise solitary bees, those of *Systoechus* and *Anastoechus* destroy the eggs in the egg-packets of Oedipodine locusts, those of *Geron* parasitise the caterpillars of certain moths, those of *Systropus* develop in the caterpillars or pupae of Limacodid-moths, those of *Toxophora* parasitise solitary wasps, those of certain *Lomatiinae* have been reared in the egg-

packets of locusts, those of some *Anthracinae* destroy the larvae of solitary bees, fossorial wasps, and even beetles, and those of *Exoprosopinae* are parasitic on the larvae of *Hymenoptera, Diptera, Lepidoptera, Orthoptera*, and even *Coleoptera*. Some species of *Bombyliidae* are thus of economic importance in that they parasitise species of insects which are injurious to man or his crops. Two species of *Systoechus* in South Africa have been proved to parasitise the egg-packets of the brown trek locust (*Locustana pardalina*), and, from an economic point of view, these insects may prove to be important agents in controlling this locust to a limited extent. Species of *Thyridanthrax* have also been bred from Tsetse Flies (*Glossina*), and species of *Villa* from destructive caterpillars. From complete life histories that have been worked out in other parts of the world it appears that the eggs



Text-fig. 4.—First instar of a Bombyliid larva (semidiagrammatic from Uvarov and after Portchinsky).

are laid or deposited in the ground near or in the nest of the host, and in many cases it appears that the hatched first instar has to make its way into the egg-packet or nest of the host. The larva probably passes through at least two or three instars before it pupates. The first instar or newly hatched larva of some forms (cf. text-fig. 4 of a *Bombylius* (semidiagrammatic from Uvarov and after Portchinsky)) is, according to Chapman (Ent. Month. Mag. xiv, 1878, p. 196), Portchinsky (Dept. Agric. St Petersb., 1895, vide "Locusts and Grasshoppers," p. 109, Uvarov, 1928), and Nielsen (p. 647, Zool. Jahrb., Bd. xviii, 1903), an active triungulin type, provided with three pairs of bristles instead of legs on the thorax and also a pair of terminal bristles by means of which it can move very rapidly and find its food. According to Portchinsky, this type of larva, of *Systoechus autumnalis*, sometimes is unable to find its food at the period it hatches, in which case it hibernates in the soil until the next spring, when it resumes its quest. According to Nielsen, the first instar may moult and initiate a sort of second instar closely resembling the first before entering the final stage. The last instar, which is usually found feeding on the eggs

in the egg-packets or on the larvae of its host, is entirely different (cf. text-fig. 127). It is an eruciform type of larva, without eyes, antennae, or appendages. As so little is known about the larval stages of Bombyliids, it is doubtful whether all *Bombyliidae* pass through similar stages, and there is reason to believe that in some cases, such as in *Systropus*, the larva is an internal parasite in the caterpillars or pupae of Limacodid-moths. The pupae of known Bombyliids (cf. text-figs. 129, 315, etc.) are peculiar in being usually armed with cephalic processes or spines, and also with transverse rows of partially embedded spines or chitinous hooks on the abdominal segments. There is no doubt that these spines and hooks facilitate movements in the soil, or may even help to pierce the masonry cell walls or cocoon walls of their hosts. From what is known it appears that the pupae of Bombyliids are capable of active movement and to a much greater extent than in the case of many other *Diptera*.

Habits and Ecology.—From an ecological point of view the *Bombyliidae* of Southern Africa are interesting in that indirectly they are associated with more or less distinct plant communities. Certain areas supporting certain types of plant associations appear to be proportionally richer in the number and variety of species of Bombyliids than others where the same or similar communities are wanting. The prevalence of certain plant communities is due to various environmental factors of which climate is probably the most important. Indirectly the distribution and preponderance of certain species of Bombyliids are thus due to climatic factors. The adults of all known Bombyliids feed on the pollen, nectar, and secretions of flowers, and the presence of flowering plants thus plays a great rôle in the lives of these insects. Both from a collector's point of view and from geographical data as regards localities, there appears to be little doubt that the semi-arid and more barren parts of Southern Africa, such as the Little Karoo, the Gouph Karoo, the Great Karoo, the Nieuwveld Karoo, Namaqualand, and Bushmanland, are proportionally area for area richer in *Bombyliidae* than any of the other regions considered in this revision. Judging from the known number and variety of species, recorded and described in literature from other parts of the Ethiopian Continent, there is also no doubt that the above-mentioned areas are also richer in numbers and species than any other part in Africa. The Karoo and the neighbouring semi-arid regions may thus be said to support a very rich Bombyliid-fauna and may be considered as an environment where the *Bombyliidae* of Southern Africa have reached their maximum development, both in species, varieties, and numbers.

The Karooid type of plant associations, comprised mostly of sclerophyllous plants and shrubs, mesembryanthemums, xerophytes, succulents, and numerous drought-resistant plants, subjected to very dry conditions but profusely flowering at times, is thus a very favourable environment for the development of these insects. Such factors as a comparatively high diurnal temperature, low rainfall, a profusion of flowers after showers, an abundance of other insect hosts and adequate soil conditions no doubt play important rôles in the life of Bombyliids. As all Bombyliids are heat-loving insects, and are more abundantly found during the noontide heat, their preference for a warm environment and maximum sunshine is obvious. In view of the fact that they are dependent on flowers for their subsistence, they indirectly play a great rôle in the pollination of our Karoo flowers. During their larval stages they are parasitic on the developmental stages of other insects, and the abundance of such insects is to them a great necessity. Second only to the Karoo in the number of forms is the Bombyliid-fauna of the type of environment which prevails at the Cape and in the south and south-western Cape Province, where an abundance of flowering plants, heaths, composites, and proteaceous plants attains a maximum glory during spring and early summer, and where a peculiar mountainous flora attracts a certain type of insect-fauna. On the other hand, the Bombyliid-fauna, both in numbers and species, are relatively fewer in the grassland, steppe, or savanna, where Dicotyledons play a minor rôle. In fact, comparatively few Bombyliids are found in grass country, and when represented they are usually found along the more wooded and dry river courses, on the rocky prominences or in hilly country where more Dicotyledons flourish and where a greater variety of plants thrive, or even in the broken mimosa or mopane bush of the interiors and plateaux.

The *Bombyliidae* of Southern Africa, and especially of its semi-arid and more barren parts, are not only remarkably rich in numbers and species, but there are also numerous genera and species which appear to be peculiar to these regions or which show characters not found in related genera and species in other parts of the world. Peculiar to and endemic in the southern parts of Africa are genera, such as *Dischistus* s.str., *Doliogethes* n. gen., *Lepidochlanus* n. gen., *Adelidea*, *Sosiomyia*, *Conophorina*, *Cheilohadrus* n. gen., *Corsomyza*, *Callynthrophora*, *Gnumyia*, *Megapalpus*, *Crocidium*, *Adelogenys* n. gen., *Apatomyza*, *Amictogeron* n. gen., *Pseudoamictus*, *Onchopelma* n. gen., *Oniromyia*, *Nomalonia*, *Henica*, *Peringueyimyia*, *Tomomyza*, *Pantostomus*, *Pteraulax*, *Synthesia*, *etc.* By far the greater number of

these genera have been recorded only from the Karoo, Little Karoo, the N.W. Karoo, Bushmanland, and Namaqualand.* Some genera, such as *Bombylius*, *Systoechus*, *Anastoechus*, *Phthiria*, *Apolysis*, and *Geron*, on the other hand, are represented by peculiar and characteristic species, or are even richer in the number of species than in other zoo-geographical regions. Characteristic species are also found in the case of *Chasmoneura* n. gen., *Platypygus*, *Empidideicus*, *Lomatia*, and *Exoprosopa*, some of the groups of the latter genus being pre-eminently or exclusively South African.

The habits of Bombyliids are little known, and as in the case of most other groups in nature much information is needed on this point. They are usually very rapid fliers, their powers of flight increasing as the temperature rises, and from about eleven o'clock in the morning to four o'clock in the afternoon they seem to reach their maximum abundance and swiftness. All of them feed on the pollen and nectar of flowers, but also on the exudations of young shoots and leaves. Certain species are almost always found settling on or in flowers, and some of them even appear to be associated with certain flowers. Others, again, are more usually found hovering over and settling on the soil or hot sand between shrubs. Many frequent rocky prominences, settling on the rocks in the hot sun or go there late in the afternoon. Many rapid fliers hover in the air, producing a monotonous and high-pitched hum, darting now here and then there. Quite a number prefer dry river courses, where they settle on the drift sand or exposed rocks. An interesting point about the hovering and settling habit is that an individual, which hovers over or settles on a certain spot, when disturbed will fly away but will eventually return to the same spot again after a while. An individual seems to be restricted to a more or less limited area, hovering here, settling there on a flower or on the ground, flying a few paces away and settling again, but after a while repeating the same procedure over the same ground. As in the case of many other insects, Bombyliids are very sensitive to cold, cold winds, and stormy weather. They become sluggish during cold weather and are not to be found flying about; specimens often being found clinging to bushes in a torpid condition. During strong wind they avoid the windy side of hillocks or hills. Many species appear to come out only at certain times of the day, and certain kinds are seen only in the fore-

* A species of the interesting *Corsomyza* has, however, been described as a fossil from the Baltic Amber of the Lower Oligocene (Tertiary Period). This genus thus appears to be palaeo-endemic in South Africa. Other ancient genera, from the Baltic Amber and still living, are *Bombylius*, *Lomatia*, and *Anthrax*.

noon while others are abundant in the afternoon. In South Africa Bombyliids appear to be more common and numerous during spring and early summer, but are only abundant during these seasons when flowers are abundant or when there is a luxuriant plant growth after rains. Many forms are, however, also found during the hottest part of the day even in winter, especially in the Karoo and northern parts of the country. Bombyliids on the whole, however, are heat-loving insects, and the dense hairy coat so characteristic of the majority of forms is probably not purely ornamental but probably subserves special physical and physiological functions in the dry environment where they preponderate. The dense pubescence is a protection against solar radiation, heat and light. The pale, gleaming, lurid, or fulvous reflecting hairs and bristly hairs reflect light and prevent the absorption of heat, a physiological necessity in a dry environment.

Systematic and Descriptive.

Bezzi in his paper, "The Bombyliidae of the Ethiopian Region," divided this family into two great divisions, the *Bombyliidae Homoeophthalmae* and the *Bombyliidae Tomophthalmae*. These divisions he based on either the absence or the presence of an emargination or sinuosity along the hind margins of the eyes, and also on the non-bilobate or bilobate condition of the occiput, and to a certain extent also on the nature of the wing-venation. According to Bezzi, however, certain genera, such as *Nomalonia*, *Henica*, *Peringueyimyia*, *Tomomyza*, and *Pantostomus*, are also included in the first great division, where the eyes are not emarginate behind and the occiput is not bilobate. These genera, however, though not having emarginate eyes, have a distinct bilobate occiput and also wing-characters agreeing more with the second division. There is no doubt, however, that the first three of these, and especially *Peringueyimyia*, are transitional forms. For purposes of convenience it is, however, better to adhere to one character common throughout the first division rather than an ensemble of characters which is not strictly distinctive for either the one or the other. In this revision the first part thus deals with all the genera not having a distinct and characteristic bilobate occiput, and to the second part are referred all genera, including those alluded to above, which have a distinct or pronounced bilobate occiput. To the second part is also appended a comprehensive index, a bibliographical list, an appendix, and a note on the number of genera, species, and varieties described and recorded from Southern Africa.

PART I.

(With 332 Text-figs.)

Division I.

Occipital region behind eyes not distinctly bilobate, usually flattened or concavely hollowed out, or merely with a slight central groove-like depression or shallow furrow down the occiput from behind ocellar tubercle, and never with a very deep slit-like channel or sulcation leading into a deep concavity in head behind, constituting a marked bilobate condition; eyes with the hind margins entire, rarely obviously sinuate and only deeply emarginate in one genus (*Eurycarenus*), always without a bisecting line or such division if present, due only to larger size of upper facets and then confined to ♂♂; wings with the common base of second and third longitudinal veins before fork usually very much shorter, with the second longitudinal vein usually originating at an acute angle from the third one, and the vein separating submarginal cells usually not provided with a distinct and even long basally directed or projecting stump or appendix near its base where it bends down to meet the third longitudinal vein.

Key to subfamilies, groups, and genera of Division I.

1. (76) Thorax without a distinctly visible, broad, and well-marked-off prothorax or pronotal part, forming a conspicuous ring or collar, and if such is indicated it is small, narrow, and hidden by the large mesonotal part which abuts on the occiput and is also not provided with stoutish macrochaetal bristles; scutellum not markedly flattened; legs with the femora, especially the hind ones, not tending to be markedly incrassate and narrowed apically and basally and without markedly long and dense spines, and elongate, flattened, and fluted scales on the tibiae, especially hind ones; antennae without very dense and conspicuous, bushy scaling on all the joints . . . . . 2.
2. (75) Body not simulating or mimicking that of Aculeate-*Hymenoptera*, such as *Sphex*, *Sceliphron*, etc., or even Vespids like *Belonogaster*; metasternal region not strongly, broadly, and abnormally developed; abdomen not remarkably long and also without a slender stalk or petiole ending in a club as in Sphegids and Vespids; legs, especially the hind ones, not abnormally long and the front femora without an elliptical callus-like area; terminal lappets or plates to last sternite (even if dorsal in position), which encloses the aedeagal complex of hypopygium of ♂♂, without a black, hardened, sculptured callus . . . . . 3.
3. (70) Wings with 2 or 3, not less than 2, submarginal cells present; antennae triarticulate, but the third joint may end in terminal elements or in a style, rarely quadriarticulate, and if an obvious fourth joint is present the wings have at least 2 submarginal cells; head with the occipital

region usually flattened, slightly hollowed or only slightly convex, not markedly and roundly convexly developed, with the eyes not tending to be shifted forwards; body usually moderate or large, rarely very small, with the pubescence usually dense, moderately dense or at least visibly present in majority of cases, rarely very sparse and short; tibiae usually with distinct rows of spicules and apical spurs and the basal joint of hind tarsi never with a basal process or hook below in ♂♂; last sternite in ♂♂ with the upper apical angle on each side rounded or only subangularly produced but not produced into a sharp, spine-like, or hook-like process; hypopygium of ♂♂ without any dorsal or ventral process and rarely with a flattened lateral process on each side of the basally directed, flattened basal strut from the middle part of aedeagal complex . . . . . 4.

4. (69) Head with the vertex and frons rarely equally broad in both sexes, and if nearly so the frons is not roundly very convex (from side), with the ocellar tubercle, when well developed, not markedly broad and centrally grooved towards base and always with 3 well-developed ocelli present, with the lower apical part of first antennal joints not conspicuously dilated or tumidly and globularly enlarged, without any distinct, dense, and conspicuous scaling on the labral part of proboscis; wings usually well developed, normal, and broad, not remarkably narrow and feeble in relation to body and with the base not remarkably narrow . . 5.

5. (56) Wings with 4 posterior cells always present and always with a discoidal cell; antennae with joint 3 rod-like, club-shaped, pointed, and if modified either broad, flattened, incrassate or clavate apically or even excavate apically but not ending apically in an upper and a lower spine-like process or a distinct subapical upper spine or hook-like process; genae with the hairs or bristly hairs not concentrated in a forwardly and upwardly directed tuft or brush; abdomen in ♀♀ never with segment 8 produced on each side below into a lobe-like or lappet-like process; thorax only rarely very convex and humped in appearance 6 (*Bombyliinae*) (p. 40).

6. (39) Wings with the anal cell open, not angularly acute and closed apically, and not provided with a distinct short or long stalk; antennae with joint 3 not clavate or thickened apically or excavated apically, and rarely ending apically in a long and distinct terminal joint or terminal elements, and if with longish terminal elements the anal cell of wings is open; hind femora rarely without spines below, and if no spines are present the anal cell is open . . . . . 7.

7. (38) Antennae with joint 3 not ending in a very long and slender terminal element or joint; scutellum not bilobate or bispinose apically; wings with the marginal cell not markedly and abnormally broad and dilated apically, and with the second longitudinal vein not arcuately curving hindwards towards hind border . . . . . 8.

8. (19) Wings with the first posterior cell acute and closed apically, either provided with a distinct stalk of variable length, or it may be very angularly acute apically and with a very short stalk, or it may even be acute and sessile on the hind border of wings, but it is never distinctly and broadly open, and in cases provided with a moderately long stalk the vein between

first and second posterior cells is not markedly S-curved and the alula of wings is always well developed and broadly lobate; first antennal joints not distinctly or widely separated and rarely very incrassate; femora rarely without spines below, and if without spines first posterior cell is not open . . . . . 9.

9. (18) Frons, face, and genae not smooth and brilliantly shining, the face not very markedly conically produced and separated from frons in front of antennae by a distinct, deep, transverse furrow; metapleurae usually hairy and always with a distinct tuft of hairs or bristly hairs just before base of halteres and above posterior thoracic spiracles; wings with a more or less well developed or distinct basal comb and with the alula always broad, lobe-like, and well developed; legs with spines, or some spines, on the femora below, especially the hind ones . . . . 10.

10. (17) Hind margin of eyes without a distinct deep sinuosity or emargination; antennal joint 3 with only shortish terminal elements or a style apically; wings with the vein between the first and second posterior cells joining on to or received by the vein separating these cells from second submarginal cell; frons in ♀♀ at least without a row of conspicuous and very stout macrochaetal bristles on each side; hypopygium of ♂♂ with the dorsal apical part of basal parts not produced apically and upwards or obliquely upwards into a transverse, flattened, lobe-like part or process, and also without a very conspicuous tuft of stiff, bristly hairs or bristles on outer lower margin in neck region of basal parts . . . . 11.

11. (14) Wings with the first basal cell distinctly much longer than second basal cell; hypopygium of ♂♂ (text-figs. 2 and 6—77) . . . . 12.

12. (13) Wings with 3 submarginal cells present

Bombylius (*Triplasius* Lw.) (p. 114).

13. (12) Wings with only 2 submarginal cells present . *Bombylius* L. (p. 41).

14. (11) Wings with the first basal cell as long as second basal cell . . . 15.

15. (16) Head across eyes markedly broad, at least as broad, or slightly broader than broadest part of thorax, with the frons broad in ♀♀ and without a distinct central furrow in ♂♂ and without a transverse depression or groove apically in ♀♀; wings with the discoidal cell very broad and distinctly more truncate apically, its apical cross vein long and usually longer than the discal cross vein, with the squamae more distinctly bilobed, the smaller lobe nearest thorax comparatively large and broad; claws more often almost straight and only slightly curved, rarely sickle-shaped, and the pulvilli always short, not extending beyond middle of claws even in ♂♂; pubescence on face and body below always strikingly or conspicuously frosty, cretaceous, or chalky white; hypopygium of ♂♂ (text-figs. 78–91) with the beaked apical joints usually very broad in basal two-thirds, leaf-shaped and the dorsum distinctly depressed or even foveately hollowed out, with the aedeagus never falcate and the ramus on each side from basal part never produced apically into a rod-like or stylet-like process on each side of aedeagus, there being either no process or a different type of process

Anastoechus Ost. Sack. (p. 290).

16. (15) Head across eyes not markedly broad and almost always narrower than broadest part of thorax, with the frons comparatively narrower, having

a distinct indication or a distinct central furrow in ♂♂ and always with a transverse depression anteriorly in ♀♀; wings with the discoidal cell more acute apically, its apical cross vein being distinctly shorter and usually shorter than discal cross vein, with the squamae less distinctly bilobed, the smaller lobe being only indicated, scarcely distinct; claws almost always sickle-shaped, either rapidly or more gradually curved downwards to apex, rarely almost straight, and the pulvilli long in both sexes, extending to much beyond middle of claws, and if to about middle the other characters at least do not conform; pubescence on face and body below only rarely frosty or chalky white and then not uniformly and very conspicuously so; hypopygium of ♂♂ (text-figs. 92–142) with the beaked apical joints more elongate and narrow, more gradually narrowed to apex and not distinctly hollowed out above, with the aedeagus either falcate, its ventral part being produced into a thin keel-like plate, or, if not falcate, the ramus on each side from basal part is produced into an apically projecting rod-like or stylet-like process on each side of aedeagus . . . . . *Systoechus* Lw. (p. 292).

17. (10) Hind margin of eyes with a deep sinuosity or comparatively deep emargination; antennal joint 3 with a longer and more conspicuous terminal joint or joints; wings with the vein separating first and second posterior cells passing straight to hind border, being joined by or receiving the vein between first posterior and second submarginal cells like a cross vein; frons in ♀♀ with a row of 2, or more, very stout and conspicuous macrochaetal bristles on each side; hypopygium of ♂♂ (text-figs. 143–148) with the dorsal apical part of basal parts produced apically and upwards or obliquely upwards into a transverse, flattened lobe or process, the upper edge of which is usually black, slightly recurved, and armed with ctenate spines, longer, more distinct, and more comb-like on the outer edge or laterally, with a distinct tuft of long, stiff bristles on lower outer margin in neck region of basal parts

Eurycarenus Lw. (p. 507).

18. (9) Frons, face, and genae very smooth, bare, and brilliantly shining black, the face markedly and conically prominent in front and separated from frons in front of antennae by a deep, transverse furrow; metapleurae bare, but with a tuft of hairs in front of halteres; wings without, or with only a very feebly developed, basal comb and with the alula very feebly developed, very narrow, and not broadly lobe-like; legs without any spines on the femora below; hypopygium of ♂ (text-fig. 150).

Sisyrophanus Karsch (p. 523).

19. (8) Wings with the first posterior cell open or broadly open on hind border and thus without a stalk and also never sessile on border, and if in very rare cases the cell is stalked the alula is vestigial and the vein between first and second posterior cells is more distinctly S-curved, the femora are without spines below and the first antennal joints are separated basally and incrassate . . . . . 20.

20. (37) Antennae with joints 1 and 2 not markedly incrassate and elongate, and if joint 1 is elongate it is not markedly and conspicuously thickened or incrassate, and joint 2 especially is not strikingly incrassate, barrel-shaped, and elongate; vertex in ♀♀ not very tumid, the ocellar tubercle

not markedly elevated; face usually more prominent; palps not obviously, visibly, and distinctly 3-jointed; wings with either 2 or 3 submarginal cells present . . . . . 21.

21. (34) Wings with only 2 submarginal cells present . . . . . 22.

22. (33) Head with the occipital part on each side behind eyes not broad and somewhat inflated, with the face not relatively broad and tumidly or conically prominent, narrower, and if conical not tumidly prominent medially, with the third antennal joints rod-like, slender, pointed but not markedly elliptical or shortly spindle-shaped and without a dense covering of spinule-like pubescence, wings, if infuscated, not mottled or marbled . . . . . 23.

23. (30) Body more plump, not elongate, the abdomen not markedly elongate and cylindrical; wings rarely with the basal comb absent or with the alula vestigial and much reduced, and if so the vein separating submarginal cells is distinctly more S-shaped and the femora are without spines below; antennal joint 3 stouter, more rod-like, comparatively more bluntly pointed, and if slender and more sharply pointed the first joints are thickened and separated, and femora without spines below; palps with the apical joints not characteristically thickened or clavate and not directed upwards; metapleurae rarely entirely bare, and if so hind femora are without spines; last sternite of abdomen in ♂♂ rarely elongate and scoop-like, and if so the femora are not spined; hypopygium of ♂♂ without a subapical lobe or spine-like process on beaked apical joints, and the aedeagus not markedly long or very slender . . 24.

24. (25) Antennae with the first joints separated, very much thickened and incrassate, barrel-shaped, with joint 3 elongate and slender, spindle or subspindle shaped, the apical part very slender; face somewhat produced and spout-like, bare; wings with the base narrowed, the alula much reduced, the axillary lobe also reduced and narrowish, the discal cross vein very much beyond middle of discoidal cell, and the first posterior cell sometimes closed and stalked apically; pubescence very dense, fine and shaggy, puff-like, that on head above, antennal joint 1, sides of face and genae very long, dense and conspicuous, without any pubescence on metapleurae, the tuft being also absent; last sternite in ♂♂ elongate and scoop-like; legs with dense and longish hairs on femora below, without any spines on femora below, with the claws curved down apically and the pulvilli long, reaching apices of claws; hypopygium of ♂♂ (text-figs. 151–154) with the beaked apical joints usually directed outwards and having a peculiar twisted structure, with the aedeagus usually broad, tubular, and spout-like *Dischistus* Lw. s. str. (p. 527).

25. (24) Antennae with the first joints contiguous, scarcely thickened, usually slender, with joint 3 not spindle-shaped, but rod-like, subrod-like, or only thickened near base; face broadly rounded, not prominent or much produced, sometimes also bare; wings with the base not markedly narrowed, the alula always well developed and lobate, the axillary lobe always broad and lobate, the discal cross vein very much before middle, at or near middle or only a little beyond middle of discoidal cell and the first posterior cell always open; pubescence much shorter, less dense, not very shaggy or puff-like, sometimes comparatively sparse and short,

especially in ♀♀, that on head above and on face shorter and less dense, and if dense it is much shorter, with some scaling or hairs on metapleurae and always with a metapleural tuft of hairs or scales; last sternite in ♂♂ shortish and broad, truncated or slightly rounded but not elongate and scoop-like; legs with much shorter, or without much, hair on femora below and always with some spines on hind femora below, with the claws either curved down rapidly or more gradually and the pulvilli short or long; hypopygium of ♂♂ with the beaked apical joints not twisted, and with the aedeagus less stout and tubular . . . . . 26.

26. (29) Pubescence on body above with the bristly hairs and bristles not distinctly frayed or fimbriate apically, without very dense, flattened, lanceolate scaling on pleurae and body below, the scaling, when present, being denser only on body above; head with the frons in ♀♀ always with a distinct transverse depression anteriorly, with the first antennal joints never distinctly thickened and without distinct visible short hairs on the third antennal joints, with the first terminal element of antennal joint 3 usually longer, conical, and more conspicuous; wings with the basal comb slightly or even distinctly more developed, the discoidal cell longer, narrower, and not broad or short and triangular and without a tendency for anal cell to be distinctly much narrowed or subacute apically; pulvilli, when reduced, at least more conspicuous at base of claws; hypopygium of ♂♂ always with a distinct membrane or ventral eadeagal process, or with a ventral apically directed process on each side below aedeagus . . . . . 27.

27. (28) Eyes in ♂♂ very narrowly separated, subcontiguous or broadly separated above, broadly or very broadly separated in ♀♀, usually 3–5 times as broad as ocellar tubercle; frons in ♀♀ with the transverse depression at about the middle or just a little beyond the middle, the frons and face in ♀♀ and face in ♂♂ never brilliantly shining black; antennae with joint 1 usually longer and with 3 usually shorter, and when long never much more than about 1½ times as long as 1 and 2 combined, gradually narrowed apically from broader base or subrod-like and slightly curved; wings with the discal cross vein very much before middle, rarely near or at middle, of discoidal cell, the discoidal cell distinctly broader and more truncate apically, the basal comb usually slightly more developed; pubescence on the whole shorter in ♂♂, less sparse in ♀♀, always with some pubescence on face in both sexes, without any opalescent, gleaming, silvery whitish scaling or even dense golden scaling on thorax and abdomen, and without any silvery tufts or black tufts on sides of antennae; body usually with much red or reddish on face, pleurae, and on abdomen in both sexes; legs always with a few spines on middle femora below, and with the pulvilli long or short; last sternite in ♂♂ with the posterior lateral angles rounded and not angularly pointed; hypopygium of ♂♂ (text-figs. 155–165) with only a ventral membranous expansion below aedeagus or with a distinct lateral apically produced process, not ending in a distinct spine, on each side below aedeagus

Doliogethes n. gen. (p. 545).

28. (27) Eyes in ♂♂ always in direct or actual contact for a short distance above, not very broadly separated in ♀♀, usually less than 3 times as broad as

ocellar tubercle; frons in ♀♀ with the transverse depression farther forwards and just behind antennae and often with a medial depression leading up to tubercle, the frons and face in ♀♀ and face in ♂♂ very often brilliantly shining black; antennae with joint 1 usually short and only about 2–2½ times as long as 2, with 3 more elongate and rod-like, straight, at least 1½ times, and usually more than 1½ times, as long as 1 and 2 combined; wings with the discal cross vein in the neighbourhood of the middle of discoidal cell, the discoidal cell more narrowed apically, the basal comb smaller; pubescence on the whole sparser in both sexes, more so in ♀♀, rarely dense in ♂♂, that on face medially wanting, with denser and more conspicuous scaling on body above, especially in ♀♀, rarely without a silvery tuft on each side of antennae in ♀♀, more often with opalescent, glittering, bluish or greenish, metallic scaling on frons and body above in ♀♀, and with gleaming, silvery white scaling on abdomen above in both sexes, or especially in ♂♂; body, including scutellum, predominantly black, rarely with reddish on pleurae or abdomen; legs only with spines on hind femora below, and with the pulvilli always reaching apices of claws; last sternite in ♂♂ with the posterior lateral angles angular or even angularly produced; hypopygium of ♂♂ (text-figs. 166–172) with a distinct lateral apically produced process on each side of aedeagus below, ending in a curved or recurved, slender hook or prong, or with a complex and broad ventral aedeagal process below aedeagus provided with a long or curved spine or hook on each side . . . . . *Chasmoneura* n. gen. (p. 586).

29. (26) Pubescence on body above with the bristly hairs and bristles frayed or fimbriate at their apices, with very dense hair-like scaling, either whitish or cinnabar-red, on body above and dense, flattened, lanceolate scaling on face, antennae, pleurae, and venter in both sexes; head with the frons in ♀♀ convex and without a transverse depression, with the face broadly rounded and not prominent, with the first antennal joints slightly thickened and with distinct, visible, short hairs on antennal joint 3 and with the terminal elements minute and inconspicuous or in form of a hair; wings with the basal comb very feebly developed, the discoidal cell shorter, broad, triangular, or bell-shaped and with a tendency for anal cell to be narrowed or even acute apically; pulvilli much reduced, vestigial, scarcely visible in ♀♀, and only indicated in ♂♂; hypopygium of ♂♂ (text-fig. 173) more *Bombylius*-like, without any ventral aedeagal process below aedeagus . . . *Lepidochlanus* n. gen. (p. 613).

30. (23) Body more elongate and cylindrical, the abdomen markedly elongate; wings with the basal comb absent and the alula much reduced or vestigial, the second longitudinal vein less bent up at its end, and the vein separating the submarginal cells less S-curved; antennal joint 3 more slender, elongate, and pointed; palps with the apical joint short, thickened, and directed upwards; metapleurae entirely bare; last sternite in ♂♂ elongate and scoop-like; hypopygium of ♂♂ (text-figs. 174–196) with a subapical lobe or spine-like process on elongated apical joints and with the aedeagus elongate and sometimes very slender . . 31.

31. (32) Body less cylindrical, less humped, and the abdomen broader; pubescence much denser and more shaggy, puff-like, that on antennae below and

on face very much shorter, that on abdomen much denser and longer and also present above; frons in ♀♀ with a distinct transverse depression; antennae shorter and joint 1 much shorter and less than 5 times as long as 2; wings with the second longitudinal vein straight and less sinuous at its end, with the alula, though reduced, more developed and with the anal cell more narrowly open; legs shorter and less developed, with denser and longer hairs on femora below in both sexes, and middle tibiae with 1 or 2 pallid spurs apically below; hypopygium of ♂♂ (text-figs. 174–195) without a very long, slender, and curved aedeagus, without a lateral lobe on each side of aedeagus and with the basal strut directed towards base . . . . . *Gonarthrus* Bezz. (p. 619).

32. (31) Body more elongate, more cylindrical, the thorax slightly, but distinctly, more humped and the abdomen narrower and more cylindrical; pubescence sparser, less dense and fine, not fine and puff-like on thorax, that on antennae below and face very much longer, that on abdomen less dense and shorter and sparse or absent above; frons in ♀♀ with a distinct groove-like depression; antennae much longer and joint 1 conspicuously elongate, quite 5–5½ times as long as 2; wings with the second longitudinal vein slightly undulating and distinctly, though slightly, more sinuous at end, with the alula very much reduced, vestigial, and with the anal cell more broadly open; legs longer, more powerful, and with much shorter and fewer hairs on femora below and middle tibiae with the apical spurs all unicolorous; hypopygium of ♂♂ (text-fig. 196) with a long, slender and curved aedeagus, with a lateral, flattened process or lobe at base of aedeagus on each side and with the basal strut directed towards apex of abdomen . . . *Paratoxophora* Engel. (p. 669).

33. (22) Head with the occipital part on each side behind eyes broad and somewhat inflated or tumidly prominent, with the face relatively, broadly, and tumidly prominent, with the third antennal joints (text-fig. 197) distinctly spindle-shaped and covered with dense spinule-like pubescence; wings extensively mottled or marbled (text-fig. 198); hypopygium of ♂ (text-fig. 199) . . . . *Cheilohadrus* n. gen. (p. 674).

34. (21) Wings with 3 submarginal cells present . . . . . 35.

35. (36) Antennal joint 3 from side (cf. text-figs. 200–205) not markedly broadened towards base, and not distinctly hollowed out below in ♂♂, and not conspicuously broad and bellows-shaped in ♀♀, and without long, stoutish, bristly hairs or bristles near base above, and long slender hairs near apex below; antennal joint 1 not markedly thickened; frons in ♀♀ without or with a less distinct transverse depression, which when indicated is slightly farther back; hairs and bristly hairs on face and genae shorter and sparser; wings without any pubescent hairs at base above and with a distinct fringe on the alula; hypopygium of ♂♂ (text-figs. 200–206) *Adelidea* Macq. (p. 680).
(Syn. = *Sobarus* Lw.).

36. (35) Antennal joint 3 from side (text-fig. 207, *b* and *c*) markedly broader and dilated near base and hollowed out or slightly excavated below in ♂♂ (*b*), very strikingly broadened basally and bellows-shaped in ♀♀ (*c*), and with long, bristly hairs or bristles above near base and also below near apex in both sexes; antennal joint 1 distinctly incrassate and thickened;

frons in ♀♀ with a more distinct transverse depression just behind bases of antennae; hairs and bristly hairs on face and genae distinctly longer and denser; wings with distinct pubescent hairs at base above and with an almost absent, very sparse or vestigial, fringe on the alula; hypopygium of ♂ (text-fig. 207, *a*) . . . *Sosiomyia* Bezz. (p. 702).

37. (20) Antennae with joints 1 and 2 markedly elongate, markedly and conspicuously thickened and incrassate, joint 2 being especially elongate, incrassate, and barrel-shaped; vertex in ♀♀ more or less tumidly raised, the ocellar tubercle being more prominent and elevated; face poorly developed, not prominent but only bluntly rounded; palps obviously and distinctly 3-jointed; wings with only 2 submarginal cells present; hypopygium of ♂ (text-fig. 208) . . *Conophorina* Beck. (p. 705).

38. (7) Antennae with joint 3 ending in a remarkably long and slender terminal element or fourth joint (cf. text-fig. 209); scutellum (text-fig. 210), bispinose or bilobate apically; wings with the marginal cell markedly broad or dilated apically, the second longitudinal vein arcuately curving hindwards towards hind border (cf. text-fig. 211); hypopygium of ♂ (text-fig. 212) . . . . . *Othniomyia* n. gen. (p. 707).

39. (6) Wings with the anal cell angularly acute apically and very rarely not closed and provided with a stalk; antennae with joint 3 clavate, thickened or excavated apically or ending in distinct terminal elements or joints; femora without any spines below . . . . . 40.

40. (49) Head very broad, sometimes markedly broad, as broad as, or broader than, thorax, with the eyes in ♂♂ broadly separated, at least as broad as broad ocellar tubercle and sometimes very much broader, with the frons broad, with the facial region usually very broad, inflated, or tumid, and sometimes with a characteristic dense brush of bristly hairs on facial part, constituting a circumoral brush, with the third antennal joints clavate, thickened, or excavated apically, and the terminal elements reduced or absent; last sternite of abdomen in ♂♂ notched medially; thorax not humped in appearance and body on the whole with much denser and longer pubescence; wings sometimes with 3 submarginal cells; hypopygium of known ♂♂ (text-figs. 214–217, 219–223, 227, 229–231, and 233–237) usually with a characteristic, somewhat laterally compressed, claw-shaped or hook-like beaked apical joints 41 (*Corsomyza*-group) (p. 712).

41. (46) Facial region not so strikingly and markedly tumidly prominent or inflated, the frons in front less tumid, sides of face, the face and genae not so strikingly inflated; antennal joint 1 not distinctly thickened and barrel or subbarrel-shaped and usually longer; proboscis usually longer, and when short always projecting beyond antennae; buccal cavity situated more in front of head; hypopygium of ♂♂ (text-figs. 214–217, 219–223, and 227–233) with the beaked apical joints more markedly claw-like and distinctly more laterally compressed . . . 42.

42. (43) Head in front markedly broad, the facial region very broad, the sides of face and genae more tumid, with the inner margins of eyes distinctly diverging down sides of facial region in both sexes, the head below being much broaded than vertex, even in ♀♀; antennae inserted much higher up, at least half or very nearly half the distance from front ocellus to

edge of buccal rim; pubescence on body distinctly denser and more conspicuous, especially in ♂♂, with that on facial region in form of a distinct and characteristic, dense, circular, facial brush, even in ♀♀, and when not conspicuous in ♀♀ the hairs on face are at least more numerous; empodium between claws and pulvilli usually slightly longer and more developed; hypopygium of ♂♂ (text-figs. 214–227)

Corsomyza Wied. (p. 714).

43. (42) Head in front not markedly broad, the facial region not conspicuously broad, the sides of face and genae not very tumidly prominent, with the inner margins of eyes down sides of facial region subparallel in ♀♀ at least, the head below about as broad as, or scarcely broader than, vertex, and when broader, as in some ♂♂, a conspicuous facial brush is absent; antennae inserted much lower down, either just above buccal rim or much less than half distance from buccal rim to front ocellus; pubescence on body very much sparser, and the ♀♀ sometimes almost bare, the erect pubescence being very sparse, without a distinct, circular, and dense, facial brush in both sexes; empodium less distinct and shorter . 44.

44. (45) Eyes in both sexes broadly separated above, the interocular space being very much broader than ocellar tubercle, with the inner margins of eyes parallel or subparallel in both sexes; buccal rim in facial part protruding prominently and spout-like, especially its upper part; antennae inserted higher up nearer middle of distance between buccal rim and front ocellus; proboscis longer, and the palps more slender and relatively longer; thorax with a distinct stoutish, macrochaetal bristle on each side in front of wings; pleurae almost entirely bare and shining, even a small metapleural tuft absent; wings comparatively shorter, the alula more reduced and vestigial, the axillary lobe also much narrower and more reduced; legs with much sparser hairs, and with only inconspicuous, or without any, bristly hairs apically above last tarsal joint; hypopygium of ♂♂ (text-fig. 229) . . . . . *Megapalpus* Macq. (p. 759).

45. (44) Eyes in ♂♂ above much more narrowly separated, by width of tubercle, or only a little more and very much narrower than in the ♀♀, and with the inner margins not parallel in ♂♂; buccal rim not protruding and spout-like in both sexes; antennae inserted almost immediately above buccal rim; proboscis usually much shorter and palps less elongate and usually thicker; thorax without any stouter or distinct macrochaetal bristles in front of wings; pleurae with more, though sparse, hairs even in ♀♀ and with a small metapleural tuft usually present; wings distinctly longer, the alula slightly more developed, broader and less vestigial and the axillary lobe much broader, often markedly subtriangularly lobe-like; legs with slightly more numerous hairs on femora, even in ♀♀, and last tarsal joint with a few, or at least one, long bristly hairs apically above; hypopygium of ♂♂ (text-figs. 230, 231, and 233)

Hyperusia Bezz. (p. 764).

46. (41) Facial region remarkably broad, markedly tumidly prominent or inflated, the frons in front more tumidly prominent, sides of face (or face) and genae very tumid or inflated; antennal joint 1 thickened or even subbarrel-shaped and short or very short; proboscis very short and confined to buccal cavity, or when slightly longer not projecting beyond

antennae; buccal cavity situated more below head, due to inflated facial region; hypopygium of ♂♂ (text-figs. 234–235, *a*, and 236 and 237) with the beaked apical joints either more dorso-ventrally compressed and not claw-shaped, or when claw-like distinctly less laterally compressed . 47.

47. (48) Head with the front half of frons and sides above antennae very broad and inflated, the most prominent part of inflated facial part thus above antennae; antennae inserted immediately above buccal cavity, with joint 1 more thickened and subbarrel-shaped, the two joints contiguous basally, with joint 2 covered with a dense coat of fine, spinule-like pubescence, with 3 clavate or distinctly more broadened apically; proboscis slightly longer and more slender, the labella narrow, more pointed and not fleshy; pubescence in ♂♂ at least longer and denser, with a well-developed, dense, circular, facial brush and with a small metapleural tuft present; wings with 2 or 3 submarginal cells present; legs without dense feathery pubescence on tibiae or at least on hind ones and the last tarsal joint without, or with only inconspicuous, hairs apically above; hypopygium of ♂♂ (text-figs. 234 and 235, *a*) with the beaked apical joints narrower, more claw-like, and more laterally compressed . . . . . *Callynthrophora* Schin. (p. 775).

48. (47) Head with the face, sides of face, and genal parts very broad and remarkably inflated, the entire facial part below antennae thus more inflated; antennae inserted very high up, very much nearer front ocellus than edge of buccal cavity, with joint 1 less thickened and even shorter, the two widely separated at base, at least as wide as space between posterior ocelli, without any visible coat of dense, spinule-like pubescence on joint 2, with 3 more rod-like and not markedly dilated or clavate apically; proboscis very short, stout, and practically confined to buccal cavity, spinulated below and with the labella broad and fleshy (Muscid-like); pubescence in ♂♂ at least distinctly shorter and sparser, without a distinct and well marked off circular, facial brush, but with the hair dense on lower parts of genae and lower part of face and without a metapleural tuft; wings in known species with 3 submarginal cells present; legs with denser pubescence and with dense feathery pubescence on hind tibiae at least and with one or a few longish hairs apically above on last hind tarsal joint; hypopygium of ♂♂ (text-figs. 236 and 237) with the beaked apical joints broader in basal half and broadly dorso-ventrally compressed, pubescent, and ending in a slender beak, not claw-shaped . . . . . *Gnumyia* Bezz. (p. 780).

49. (40) Head normal, not remarkably broad, with the eyes in ♂♂ contiguous or in contact above, the frons small or narrow, with the facial region narrow, small or conical, not remarkably inflated or tumid and without a circular brush of dense hairs, with the third antennal joints tapering and ending in a terminal element or elements, not excavate or clavate apically, last sternite in ♂♂ not notched medially; thorax usually humped in appearance and body with much sparser and shorter pubescence; wings with only 2 submarginal cells present; hypopygium of known ♂♂ (text-figs. 238–246) with the beaked apical joints not much laterally compressed or claw-shaped . . . . . 50.

50. (55) Body with the thorax more humped in appearance and with longer and denser pubescence on head, thorax, pleurae, coxae, and abdomen, and

also with scaling on body; head with the frons less convex, more or less transversely depressed anteriorly, especially in ♀♀, with the face less conically prominent and not, or scarcely, demarcated from frontal part, with the first antennal joints 2, or more, times as long as the second joints; wings with the third longitudinal vein not bending towards discoidal cell at level of discal cross vein and with the base of second submarginal cell broader and more truncate; legs longer and more slender, the tibiae with the spicules longer and more strongly developed and the middle tibiae with a distinct, longer, apical spur below and with the front coxae longer . . . 51 (*Crocidium* Group) (p. 785).

51. (54) Antennae much shorter, with joint 1 much shorter, much less than 6 times as long as 2, not thickened and with joints 1 and 2 combined very much shorter than joint 3 (including terminal elements); body not simulating that of a Therevid . . . . . 52.

52. (53) Head with the occiput more normally concave, with the inner margins of eyes in ♀♀ very distinctly diverging anteriorly, the frons becoming wider anteriorly and the distance between eyes across buccal cavity considerably broader than across face or frons in both sexes, with the genae always present and distinct, comparatively broad or very broad, the furrow on each side of buccal rims some distance away from inner margins of eyes, with the frons and face sometimes brilliantly shining and with a yellow transverse band across facial region in ♀♀, with the apical joints of palps slightly longer and clavate apically; wings less elongate, spotted or hyaline, with the axillary lobe broader, triangularly produced and rounded posteriorly, the alula broader and more lobately rounded; halteres with the knobs much shorter and much less than 2 times as long as broad; body on the whole shorter and less elongate, not resembling an Empid and the thorax less markedly humped; hypopygium of ♂♂ (text-figs. 238–245) . . *Crocidium* Lw. (p. 786).

53. (52) Head more spherical, the occiput less concave, with the inner margins of eyes in ♀♀ tending to be parallel or subparallel even down sides of face and buccal cavity, with the frons, face, and distance across buccal cavity more or less equal, the lower part of head across buccal cavity thus not, or scarcely, broader than across frons, with the genae almost absent or wanting, represented along inner margins of eyes only as a narrow line, almost wanting or even obliterated at about middle and only narrowly visible on each side above and below, the narrow groove on each side of buccal cavity thus practically only separating the inner margins of eyes from the buccal rims, with the frons and face not smoothly shining and without a transverse yellowish band on facial region in ♀♀, with the apical joints of palps usually shorter and distinctly more oval or ovate; wings more elongate, tinged or infuscated, with the axillary lobe narrower, only rounded posteriorly and not triangularly prominent, the alula more reduced, much narrower and only slightly arcuately rounded posteriorly; halteres with the knobs more conspicuous and more elongated, nearly or quite 2 times as long as broad; body more elongate, more resembling that of an Empid or a *Culex* and with the thorax even more markedly humped; hypopygium of ♂ (text-fig. 246) *Adelogenys* n. gen. (p. 811).

54. (51) Antennae elongate, with joint 1 conspicuously elongated, quite 6 times as long as joint 2, somewhat thickened and with joints 1 and 2 combined only slightly shorter than joint 3 (including terminal elements), body with a marked resemblance to that of a Therevid
Apatomyza Wied. (p. 818).
(ex, descr. Wiedemann and Becker).

55. (50) Body with the thorax distinctly less convex and less humped in appearance and with the pubescence very short and sparse, the head and body almost bare and also without any scaling; head (text-fig. 247) with the frons in ♀♀ at least more convex, not depressed anteriorly, with the face more conically prominent and distinctly more demarcated from frontal part, with the first antennal joints shorter, less than 2 times as long as second joints; wings with the third longitudinal vein bending towards discoidal cell at level of discal cross vein and the second submarginal cell angularly acute basally; legs stouter and much shorter, the spicules on tibiae less strongly developed and the middle tibiae without a long spur apically below and the front coxae very much shorter and plumper
Heterotropinae (*Heterotropus* Lw.) (p. 819).

56. (5) Wings sometimes with only 3 posterior cells present, and if 4 are present the third antennal joints end apically in either an upper and a lower spine-like process or in a subapical process, with or without a discoidal cell; antennae with joint 3 ending apically either in an upper and a lower spine-like process or in a subapical process or an upwardly directed apical spine or process (if not, wing at least has only 3 posterior cells); genae often with the hairs or bristly hairs aggregated in a forwardly and upwardly directed tuft or brush, and if without such a brush the third antennal joint is modified; abdomen in ♀♀ usually with segment 8 produced on each side below into a lobe-like process; thorax more often more distinctly convex and humped in appearance . . . 57.

57. (64) Head with the pubescence on genae on each side not concentrated in a forwardly and upwardly directed tuft or brush, with the face usually very short, sometimes practically non-existent, with the first antennal joints very short, never more than about 1½ times as long as second joints, with the third joints modified, ending apically in either an upper and a lower spine-like process or in a subapical upper process or spine; wings with 4 or with 3 posterior cells and with or without a discoidal cell, with the apical cross vein of discoidal cell (when present) scarcely and not markedly **S**-curved, without a knob-like thickening near base of upper vein of second basal cell; abdomen in ♀♀ without a distinct lobe-like process or lappet ventrally on each side of segment 8; tarsi without a patch or a clump of a few longer spines basally below on basal joints; hypopygium of ♂♂ (text-figs. 248–256 and 258–263) less complicated, with the basal parts usually divided into two symmetrical parts, with a distinct movable apical joint to each basal part and with the aedeagal complex more Bombyliine . . 58 (*Phthiriinae*) (p. 822).

58. (59) Wings with 4 posterior cells, with a discoidal cell always present, with the second submarginal cell very obtuse basally, the upper vein sharply bent at base; antennal joint 3 (text-figs. 248 and 253, *a*) more spindle-shaped, with a distinct and often prominent upper apical or subapical

spine-like process, often forming a symmetrical or unsymmetrical bifid process with a distinct lower apical process or prominence, with conspicuous, short, bristly hairs on the joints above, especially in ♂♂; legs with distinct, though feeble, spicules distinctly visible on tibiae and with the last tarsal joint not very distinctly or markedly thickened or broader than the others; body in ♀♀ sometimes with much yellow even on head, thorax, and pleurae, and with the pubescence on the whole denser and longer; hypopygium of ♂♂ (text-figs. 248–256)

Phthiria Meig. (p. 824).

59. (58) Wings with only 3 posterior cells, with the discoidal cell sometimes entirely absent, with the second submarginal cell distinctly much more acute to very acute basally, the upper vein scarcely, or only slightly, bent at base; antennal joint 3 (text-figs. 257 and 263) more oval or equally broad throughout (from side), with a single subapical or apical upwardly directed spine-like process just in front of which there is also dorsally a depression or hollow lodging the terminal style, with only fine and inconspicuous, or even without any, bristly hairs on the joints above even in ♂♂; legs without any distinctly visible spicules, but apparently only covered with fine pubescence or short hairs and with the last tarsal joint distinctly and visibly thickened and broader than the other joints; body without yellow markings on head and thorax and with the pubescence distinctly less developed, the greater part of body being more often almost bare; hypopygium of ♂♂ (text-figs. 258–263) . . . . . 60.

60. (63) Wings without a discoidal cell, with the second submarginal cell more distinctly acute basally; eyes in ♂♂ in contact or separated above; pubescence on body more conspicuously developed even if sparse, with distinctly longer and more conspicuous hairs on coxae, femora, and tibiae in both sexes; thorax comparatively broader and more subglobularly rounded; last abdominal sternite in ♂♂ more elongate and scoop-like, narrowed or pointed apically; hypopygium of ♂♂ (text-figs. 258–262) . . . . . 61.

61. (62) Eyes in ♂♂ in actual contact for some distance, the upper facets being coarser than the lower ones; pubescence on body more distinctly developed in both sexes, longer, that on legs also more conspicuous and with a distinct row of longer hairs on outer side of tibiae in both sexes; legs on the whole slightly longer; wings also slightly longer; palps usually longer and more developed, the apical joint usually slightly thicker than basal one . . . *Apolysis* Lw. s. str. (p. 848).

62. (61) Eyes in both sexes comparatively broadly separated, the upper facets in ♂♂ not differentiated from lower ones; pubescence on body much sparser and shorter in both sexes, that on legs distinctly shorter and without a distinct row of distinctly longer hairs on tibiae; legs on the whole stouter; wings also slightly shorter; palps very short, the apical joint apparently not thicker than basal one

Apolysis Lw. (in part) (p. 848).

63. (60) Wings with a distinct discoidal cell present, with the base of second submarginal cell more obtuse; eyes in ♂♂ in contact above; pubescence on body very short, very sparse, the greater part of body practically

bare, with shorter and fewer hairs on coxae and only fine pubescence on femora and tibiae; thorax slightly more elongate and narrower, more humped in appearance; last sternite in ♂♂ not conically produced; hypopygium of known ♂ (text-fig. 263, *b*) . *Oligodranes* Lw. (p. 861).

64. (57) Head with the pubescence on genae on each side produced into a forwardly and upwardly directed tuft or brush, with the face usually distinct and conical, with the first antennal joints usually longer than 1½ times as long as the second joints, with the third joints only tapering to a fine and sharp point; wings always with only 3 posterior cells present and with a discoidal cell always present, its apical cross vein very markedly S-curved, always with some knob-like thickening near base of upper vein of second basal cell; abdomen in ♀♀ always with a lobe-like or lappet-like process ventrally on each side of segment 8; tarsi with a patch or clump of a few longer spines basally below on basal joints; hypopygium of ♂♂ (text-figs. 264–298) entirely different, more complicated, having a single, undivided basal part, no distinctly movable apical joints, but only apical lobes or processes to basal part and a differently constituted aedeagal complex and accessory structures

65 (*Geroninae* n. subfam.) (p. 866).

65. (68) Body with the thorax markedly convex above, humped, the pleural parts compressed and high; head more globular, the genae much narrower and the distance from eye to eye across buccal cavity considerably narrower, not, scarcely, or only a little, broader than across face; eyes in ♂♂ in actual contact for a long distance or at least distinctly contiguous, the line of contact rarely not impressed, with the frontal triangle usually small, with the ocellar tubercle prominently pimple-like or tubercular on vertex and the palps shorter; wings usually narrower and less elongate, rarely with a tendency for base of second submarginal cell to be opposite apex of discoidal cell, the distance from discal cross vein to base of second submarginal cell thus rarely very much, or distinctly, shorter than from discal cross vein to fork of second and third longitudinal veins; tibiae with the spicules extending to near bases and not confined to apical parts . . . . . 66.

66. (67) Head with dense silvery white scaling and whitish hairs, or at least with white hairs, on sides of frons, sides of face, on upper parts of genae and along hind margins of eyes, without any black hairs on frons in ♀♀ or black hairs on antennae in both sexes, with the middle parts of genae bare and with the genae sometimes gleaming ivory whitish or yellowish; inner margins of eyes in ♂♂ scarcely, or not distinctly, sinuate opposite bases of antennae; first antennal joints closer together, never longer than about 3 times as long as the second joints and never dilated or thickened at bases and without long, dense, and bushy hair; interocular space in ♀♀ broader, usually about 2 times as broad as ocellar tubercle; wings never infuscated, the second submarginal cell much shorter, about as broad apically as long along lower vein or at least never more than 2 times as long as broad apically, with the apical cross vein of discoidal cell slightly S-curved and with the alula distinctly more developed, produced and lobe-like or tongue-like; halteres rarely with the knobs darkened above; pubescence with the erect hairs on body above in ♂♂

denser and slightly longer, never very dark or blackish on dorsum, those on ♀♀ above also distinctly denser and pale or whitish, never with black intermixed hairs; hypopygium of ♂♂ (cf. text-figs. 264–280) with the apical processes to basal part usually finger-like, tubercle-like, or boss-like, with the central guide (C.G.), joined on to ramus (R.), usually more separately visible, with a dorsal guide (D.G.) usually present and with the basal end of aedeagus more distinctly spoon- or ladle-shaped

Geron Meig. (p. 867).

67. (66) Head without silvery white scaling and white hairs on sides of frons, face, and upper parts of genae, with no silvery scaling behind eyes, the face without any hairs, entirely bare, sides of frons also bare and with only a duplicated row of short, blackish, bristly hairs on each side of middle of frons in ♀♀, with only the extreme upper parts of genae bare, the middle and lower parts with long hairs, the genae never gleaming ivory whitish and with entirely or predominantly blackish hairs on first antennal joints in both sexes; inner margins of eyes in ♂♂ distinctly and more conspicuously sinuate opposite bases of antennae; first antennal joints distinctly wider apart, rarely about 3 times as long as second joints, more often considerably more than 3 times, often markedly thickened or dilated basally, especially in ♂♂, and in ♂♂ more often also with very long, conspicuous, bushy, black hair; interocular space on vertex in ♀♀ much narrower, never 2 times as broad as tubercle; wings sometimes tinged cinereous, smoky, or even very darkly, with the second submarginal cell always very much longer, distinctly much longer than 2 times, along lower vein, than broad apically and thus with the sides more parallel, the apical cross vein of discoidal cell rarely not markedly S-curved and with the alula distinctly less developed, only slightly lobe-like and not arcuately prominent; halteres rarely with the knobs not darkened or blackened above; pubescence with the erect hairs on body above in ♂♂ less dense and on the whole shorter, always predominantly dark or with much black hair above, those on ♀♀ distinctly shorter and less dense and always with short, bristly, very dark or blackish hairs on head, thorax, and scutellum above; hypopygium of ♂♂ (cf. text-figs. 281–295) with the apical processes of basal part more flattened, triangular, or leaf-shaped, with the central guide (C.G.) usually not separately distinct from base of aedeagus and that of the apically produced prong or spine on each side above aedeagus, with usually more spines or prongs at base of apical lobes of basal part and with the apical part of ramus (R.) always produced into a spine, prong, or process

Amictogeron n. gen. (p. 918).

68. (65) Body with the thorax less markedly convex or humped above, the pleural parts less high; head slightly more dorso-ventrally compressed, the genae very broad, and the distance from eye to eye across buccal cavity very much broader, considerably broader than across face or front part of frons; eyes in ♂♂ with the inner margins not in actual contact for a long distance, at narrowest part distinctly separated or only subcontiguous by a space only as broad as front ocellus, with the frontal triangle thus much larger, the line of subcontiguity (if present) not deeply impressed, and the ocellar tubercle not markedly elevated and with the palps slightly

longer and more slender; wings more elongate, with a tendency for base of second submarginal cell to be more or less opposite apex of discoidal cell, the distance from discal cross vein to base of second submarginal cell thus much shorter than, rarely subequal to or as long as, distance from discal vein to basal fork of second and third longitudinal veins; tibiae with the small spicules practically confined to apical half or the apical part; hypopygium of ♂♂ (text-figs. 296–298) *Pseudoamictus* Big. (p. 958).
(Syn. = *Pseudempis* Bezz.)

69. (4) Head with the frons equally broad in both sexes, very broad and roundly convex, with markedly broad ocellar tubercle, which is centrally grooved posteriorly, with the ocelli widely separated and reduced, the posterior ones small and reniform and the anterior one wanting or merely represented by a scar or puncture, with the lower apical part of first antennal joints markedly tumid or tubercularly prominent, with distinct, dense, and conspicuous scaling present on the upper or labral part of proboscis, especially towards base; wings remarkably narrow, markedly narrow at base and, relative to body, feebly developed; hypopygium of ♂ (text-fig. 308) . . . . *Cythereinae* (*Oniromyia* Bezz.) (p. 986).

70. (3) Wings (cf. text-figs. 300, 302, *b*, and 305, *b*) with the cells much reduced, with only 1 submarginal cell present, the position of the second submarginal cell being occupied by the first posterior cell, sometimes even without a marginal cell or a discoidal cell; antennae normally and conspicuously quadriarticulate, a distinct fourth joint being present; head with the occipital region more markedly and sometimes prominently and convexly developed, the eyes being, or tending to be, shifted far forwards; body usually very small, with the pubescence almost entirely absent, the greater part of body being almost bare; tibiae with practically only fine pubescence and no distinct spicules, and with the apical spurs inconspicuous or very much reduced, and the basal part of hind tarsi sometimes with a basal hook-like process below in some ♂♂; last abdominal sternite in ♂♂ with the upper apical angle on each side produced into a distinct spine-like or hook-like process (cf. text-figs. 301 and 304, *a*); hypopygium of ♂♂ (cf. text-figs. 301 and 304, *b* and 306 and 307) with a dorsal or ventral process or a flattened lateral process on each side of the laterally compressed basal strut
71 (*Cyrtosiinae*) (p. 966).

71. (74) Wings (cf. text-figs. 300 and 302, *b*) with a distinct and normal marginal cell present and without a discoidal cell; head below not sulcate longitudinally; fourth antennal joints broad (cf. text-figs. 299 and 302, *a*), more joint-like and not slender and style-like; body larger, more than 2 mm. long, and with a wing-length of much more than 2 mm., with the pubescence, even if sparse, distinctly longer and more conspicuous and with the integument, especially the black parts, more brilliantly shining; hypopygium of ♂♂ (cf. text-figs. 301, *b* and 304, *b*) without a medial dorsal process or a lateral process on each side of basal strut . 72.

72. (73) Body more slender, elongate, the thorax more roundly humped, with the pubescence shorter and less developed; head elongate, with the occipital region markedly convex and elongate, not flattened, the eyes shifted forwards, with the head below produced posteriorly into a blunt, spine-

like process (cf. text-fig. 299) and the eyes touching or very nearly touching below; frons foveately depressed in both sexes and the space on vertex equally broad in both sexes, the inner margins of eyes distinctly converging apically; antennae shorter and joint 3 comparatively broader (cf. text-fig. 299); proboscis more slender, with a very short and pointed labella, with the palps not discernible; wings (cf. text-fig. 300) with the microtrichiae on hind border markedly conspicuous and with the fine hairs on surface distinct, with the first basal cell not shorter and very much narrower than second one, with the anal cell open and the axillary lobe narrow; legs more slender, less conspicuously pubescent, with the front and middle tibiae at least longer than the femora and with the hind tarsi in ♂♂ normal; hypopygium of ♂♂ (text-fig. 301, *b*) . . . *Platypygus* Lw. and *Ceratolaemus* n. subgen. of *Platypygus* Lw. (pp. 968 and 969).

73. (72) Body more plump, not slender and elongate, the thorax less roundly humped, with the pubescence, especially in ♂♂, distinctly longer and denser; head normal, subglobular, the occipital region flattened, short, and normal, the eyes situated normally, with the head below short, normal and not produced basally, and the eyes very broadly separated below; frons not foveately depressed, very small in ♂♂, broad in ♀♀, the eyes in actual contact above in ♂♂, the inner margins of eyes in ♀♀ at least subparallel above; antennae (cf. text-fig. 302, *a*) more elongate and joint 3 also more slender and elongate; proboscis plumper and stouter, with longer and more developed labella, with the palps, though small, discernible; wings (cf. text-fig. 302, *b*) with the microtrichiae along hind border short and inconspicuous and without conspicuous, fine hairs on surface, with the first basal cell much shorter and narrower than second basal one, with the anal cell acute apically and provided with a stalk and with the axillary lobe lobe-like and well developed; legs stouter, relatively shorter, more conspicuously pubescent, with the front and middle tibiae scarcely longer than femora and hind ones even shorter, with the base of basal joint of hind tarsus (cf. text-fig. 303) produced into a hook-like, curved process in ♂♂; hypopygium of ♂♂ (text-fig. 304, *b*) . . . . *Onchopelma* n. gen. (p. 973).

74. (71) Wings (cf. text-fig. 305, *b*) without a marginal cell and with or without a discoidal cell; head below longitudinally sulcate; antennal joint 4 distinctly more slender and style-like (cf. text-fig. 305, *a*); body smaller, less than 2 mm. long, and with a wing-length of only about 2 mm. or even less, with the pubescence very short and less conspicuous and with the integument duller and less shining; hypopygium of ♂♂ (text-figs. 306 and 307) with a median apically directed process and a flattened lateral process on basal strut . . *Empidideicus* Beck. and *Anomaloptilus* n. subgen. of *Empidideicus* (pp. 979 and 983).*

75. (2) Body simulating or mimicking that of Aculeate-*Hymenoptera*, such as *Sphex*, *Sceliphron*, etc., or even Vespids, such as *Belonogaster*; metasternal region strongly and broadly developed; abdomen markedly long and with a slender stalk or petiole, ending in a club as in Aculeate-

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* *Doliopteryx* n. gen. (See Appendix in part II) to come after *Empidideicus*.

Hymenoptera and *Vespidae*; legs, especially hind ones, abnormally elongate and Sphegid or Vespid-like, and the front femora with an elliptical, callus-like, and microscopically sculptured area; terminal lappets or plates to last sternite (dorsal in position), which surrounds the aedeagal complex of hypopygium of ♂♂ (cf. text-figs. 310, 311, 313, 314, 317, 319, 321–323, and 325–326), with a black, indurated, or hardened, microscopically sculptured callus-area

Systropinae (*Systropus* Wied.) (pp. 990 and 991).

76. (1) Thorax with a distinctly visible, broad, and well marked off prothorax or pronotal part, forming a conspicuous ring or collar in front of the mesonotal part, the anterior part of which and the pronotal part as well being provided with stoutish macrochaetal bristles; scutellum markedly flattened; legs with the femora, especially hind ones, tending to be markedly incrassate and narrowed apically and basally and with markedly long and dense spines and dense, elongated, flattened, and fluted scaling on the tibiae, especially the hind ones; antennae with very dense, conspicuous, and bushy scaling on all the joints; hypopygium of ♂♂ (text-figs. 327–332) . . *Toxophorinae* (*Toxophora* Meig.) (pp. 1028 and 1029).

Subfam. *Bombyliinae.*

As is evident from the key, this subfamily includes no less than 24 genera and thus constitutes the largest subfamily in this division. In contrast with the more or less constant and uniform characters distinguishing the genera belonging to other well-defined subfamilies, the genera grouped in this subfamily show no such uniformity. As will be seen, several genera encompassed by the *Bombyliinae* are, however, nevertheless referable to more or less distinct groups, which may even be considered as separate tribes. Apart from the genera *Bombylius*, *Anastoechus*, and *Systoechus*, which constitute the basic elements of the subfamily, such groups as the *Corsomyza*-group (*Corsomyza*, *Megapalpus*, *Hyperusia*, *Callynthrophora*, and *Gnumyia*), the *Crocidium*-group (*Crocidium*, *Adelogenys*, and *Apatomyza*), the *Gonarthrus*-group (*Gonarthrus* and *Paratoxophora*) and even the *Doliogethes*-group (*Doliogethes*, *Chasmoneura*, and *Lepidochlanus*) are separately sufficiently distinct in certain essentials to justify their elevation to at least a tribal status. Other genera, such as *Eurycarenus*, *Sisyrophanus*, *Adelidea*, *Sosiomyia*, *Cheilohadrus*, *Othniomyia*, and *Dischistus* s.str., however, cannot be relegated to distinct groups unless these are mono-generic groupings. For the sake of convenience all these groups are provisionally referred to the *Bombyliinae* in this revision. There is no doubt that this subfamily thus contains many heterogeneous elements, but it is equally clear that a proper definition of the subfamily is only possible when the true systematic positions of all the genera in the world, now included in it, have been

elucidated. To a certain extent this is also true of other subfamilies, and, as is evident from the key, there is no doubt that *Crocidium* and *Apatomyza* and *Gonarthrus* can no longer be retained in the *Phthiriinae*, where certain important antennal and wing-characters are more or less constant. Neither can the *Corsomyza*-group be referred to the Palaearctic *Usiinae*, as was done by Bezzi, for in the former genus and its allies there are very striking differences. The characters of a large subfamily, such as the *Bombyliinae*, are not easy to define, but the characters, referred to in the preceding key, will emphasise the essential differences between the various groups which constitute this subfamily and those of other subfamilies in this first division.

Gen. *Bombylius* Linn.

(Systema Naturae, ed. x, 606, 228, 1758; Loew, p. 181, Dipt. Faun. Südafr., i, 1860; Becker, pp. 441 and 492, Ann. Mus. Zool. Acad. Imp. St. Petersb., vol. xvii, 1912; Bezzi, p. 6, Ann. S. Afr. Mus., vol. xviii, 1921; Bezzi, p. 30, The Bombyliidae of the Ethiopian Region, 1924; Paramonow, Mem. Acad. d. Sc. de l'Ukraine, tom. iii, livr. 5, 1926; Engel, p. 196, Die Fliegen. d. Pal. Reg. Lief., 80 (Bombyliidae), 1934.)

(Syn. = *Choristus* Walk., p. 197, Ins. Saund. Dipt. iii, 1852; syn. = *Parisus* Walk., p. 196, loc. cit.)

There is no doubt that the genus is still at present not a well-defined one, as is evident from the descriptions of the numerous Palaearctic and Ethiopian species by Bezzi, Paramonow, and Engel. When, however, a very large number of species is examined, it is almost impossible to separate off series or groups which together can form a well marked off subgenus or genus. Species, grading into neighbouring series or groups in certain characters, are common and constitute the main difficulty in dividing up this genus. Neither do the male genitalia throw much light on the problem, for species with markedly distinct genitalia are often found which in other respects obviously belong to the same series. The genus at present may be looked upon as an aggregate of often widely separated elements, which can be made to grade into each other through intermediate species or connecting links, and which display certain common characters of otherwise disparate groups. Notwithstanding much disparity, there are certain generic characters which, when taken together and not individually, may be said to define the genus. These characters, which have been agreed upon by such authors as Wiedemann, Macquart, Loew, Becker,

Bezzi, Paramonow, and Engel, have also been used in this paper for the diagnosis of this genus. The chief characters of *Bombylius* may be summarised as follows:—

Body usually bee-like in shape and appearance, with the thorax rarely humped in appearance, and when showing a humped appearance this is due to dense and shaggy pubescence, with the abdomen never distinctly elongate, usually shortish and plump; pubescence usually comparatively dense and sometimes remarkably dense, long, and shaggy, usually very dense on abdomen, thorax, and on facial region, that in ♀♀ not less dense or conspicuous than in ♂♂, but the mystax on head in front and on genal parts in ♂♂ sometimes denser and more conspicuous, with distinct more bristly elements, bristles or even stoutish macrochaetal bristles usually present on certain sites, such as on genae, on thorax in front of wings, on post-alar calli, across hind margin of scutellum, on mesopleuron, and in rows across hind margins of the abdominal tergites, with such bristles, however, present or absent from either the one or other site in the various species, with the pleurae on the whole very hairy and a distinct metapleural tuft always present, with depressed, finer scale-like pubescence present in many species especially in the ♀♀, with true scales usually not very well developed, but are always present on the legs and even sometimes on body below or even above, either sparsely or in spots or tufts, with the pubescence very variable in colour and often gleaming sericeous, silvery or deep golden in different positions and with the scaling, when densely present on certain sites especially in ♀♀, sometimes gleaming silvery, reddish golden to golden. *Head* with the eyes in ♂♂ above either in actual contact for some distance or contiguous or separated either narrowly by front part of ocellar tubercle, by the tubercle or even by a space wider than the tubercle, always separated in ♀♀ by a space much or very much broader than the tubercle, with the upper facets of eyes in ♂♂ coarser than lower ones and very much so in forms with the eyes in contact above; ocelli always present and situated in form of a triangle on a slight boss-like or tubercle-like elevation; frons in ♀♀ either with a distinct and deepish transverse depression or with a slight depression which is either more longitudinal or even shallowly transverse and towards apical part of frons or it is convex and without a depression; face moderately developed, rarely conically prominent and rarely conspicuously produced; genae with the upper part (sides of face) usually broad and well developed and the lower part also broadish, but with the middle part often very narrow and even almost linear or wanting where the groove between genae and

buccal cavity is deepest; antennae with joint 2 always shorter, even if only slightly, than joint 1 or joint 3, and with joints 1 and 2 always with more or less conspicuous pubescence, sometimes remarkably long in some species, with joint 1 rarely very much thickened, with joint 3 variable in shape, usually bare, and if with indications of pubescence this is inconspicuous, with the terminal elements of joint 3 sometimes visible as separate joints bearing a style, usually small and appearing continuous with a stylar element which is always discernible to a variable degree; proboscis always distinctly projecting beyond buccal cavity or head, but otherwise variable in length and stoutness, usually without, but sometimes with, distinctly visible spinules below on labium, with the labella always more or less elongate and well developed, sometimes markedly elongate and usually narrowish; palps distinctly and obviously 2-jointed in the majority of species, the joints separately visible, with either long or short hairs and never without at least some hairs on apical joint. *Thorax* rarely as broad as head at its broadest part, almost always much broader; wings constantly with 4 posterior cells present, of which the first is always closed and acute or subacute apically and there provided with a stalk, variable in length, with the anal cell always open on the hind border, with the discal cross vein either before, at, or beyond middle of discoidal cell, never so near base as to make the first basal cell exactly equal in length to second basal cell as is the case in *Systoechus*, with only 2 submarginal cells (excepting only the subgenus *Triplasius* Lw., where 3 submarginal cells are present), with the basal comb usually well developed but sometimes poorly developed and rarely entirely vestigial or absent, with the alula usually also well developed and lobe-like, never reduced and very narrow, with the axillary lobe also well developed, with the wings themselves either hyaline, greyish hyaline, tinged yellowish or brownish in part or entirely infuscated or spotted and mottled to a variable extent. *Abdomen* with the genital segment in ♀♀ more or less always with some stoutish bristles or more often spines on each side, connected with the ovipository functions of the genital laminae. *Legs* always with spines on femora even if only on middle and hind ones below, with the spines or spicules on tibiae usually well developed on all the tibiae, with at least 3 rows on front ones and 4 rows on middle and hind ones, with the apical spurs on tibiae always more or less conspicuous; claws sickle-shaped and short, strong or slender and sometimes even more straight, scarcely curved downwards apically, with the pulvilli either long and well developed in both sexes, or long only in ♂♂ or much reduced, vestigial in ♂♂, and

absent or very minute in ♀♀, and in some cases practically wanting in both sexes and with the apical hairs on last tarsal joint above never conspicuously long as in *Corsomyza* and some other genera, more often almost wanting; tarsi with the front ones in some ♀♀ distinctly thickened and thicker than the middle and hind ones. *Hypopygium* of ♂♂ (cf. text-fig. 2 and figs. 6–77) extremely variable in shape, with the beaked apical joints (Ap.Jt.) very variable, never with a subapical lobe or with the outer part very angularly or lobularly prominent, often elongate and sometimes broad and almost leaf-shaped, with the apical part of the aedeagus (Ae.) never very broad and spout-like or very slender and arcuately curved upwards, with or without a ventral aedeagal process (V.Ae.Pr. or Ae.Pr.) below, with the dorsal part sometimes produced basally into a strap-like process projecting basally on each side, with the basal strut (Ba.Str.) assuming various shapes. A comparison of the numerous figures with those of other, and sometimes related, genera will give a much better conception of the type of hypopygium found in this genus. Though there is some considerable uniformity in the structure of the hypopygium in *Bombylius* there are marked structural differences as well, as are evident from the text-figures, and there is no justification in the case of the South African forms for Engel's statement that "Der Bau des Epipygiums ist von erstaunlicher Gleichförmigkeit."

To supplement the above summary of the chief characters of *Bombylius*, the reader is also referred to the summaries given by the other authors mentioned above and particularly by Paramonow and Engel. Owing to a marked superficial resemblance between many species and the great difficulty in separating such species, the following key is in many respects formidable, and the necessary enumeration of specific differences makes the couplets almost descriptive. It is also evident from this key that no individual or single character can be used by itself alone, but that an ensemble of characters is, in many cases, necessary to distinguish and separate the various species.

Key to the South African species of Bombylius *seen and examined by me.*

A. (D) Pubescence on body moderately developed or shortish, not markedly long, not giving the insects a marked puff-like appearance, that on abdomen not markedly long and shaggy and when appearing shaggy usually only so towards apex, that on sides at base rarely very long, that on first antennal joints, face, and especially on lower parts of genae usually without very conspicuous, long, stoutish, and stiff bristles, the pubescence on thorax, when strongly developed, not very conspicuous and

shaggy, with the bristles on abdomen either absent, poorly developed or, when stoutish and distinct, not markedly long and conspicuous; wings usually with the discoidal cell more narrowed apically, often acute or subacute apically, rarely with an extensive pattern of dark infuscations, large spots, or with a system of spots on cross veins and bases of other veins, and when such infuscations or spots are present the pubescence on abdomen is not markedly shaggy discally, and on sides and third antennal joints are not markedly slender, with the squamal fringe usually much shorter, composed only of fine hairs and without any distinct long bristly hairs or even bristles, and with the basal comb usually moderately developed; eyes in ♂♂ in contact above for a relatively long distance, or for a short distance, or they are contiguous or subcontiguous, or they are separated by the ocellar tubercle and not wider than tubercle, with the upper facets always distinctly and sometimes very much coarser than lower ones; frons in ♀♀ with a more distinct transverse depression or longitudinal depression; antennal joint 3 less markedly attenuated apically and usually more thickened and relatively shorter; legs with the claws more usually sickle-shaped, curved downwards apically, and with the pulvilli rarely very poorly developed and not reaching at least middle of claws; hypopygium of ♂♂ with the beaked apical joints usually bird-head shaped, triquetrous, elongated, or even very elongate and with a long beak and rarely conspicuously depressed or hollowed out above B.

B. (C) Legs very dark or black and with the spines and spicules always black, and when legs are yellowish or the tibiae yellowish, the spines and spicules at least are black; pubescence on body usually with much dark or black hair or blackish bristly hairs and bristles, even if only on antennae and face in ♂♂, more often with silvery white scaling or scale-like hairs in form of spots or patches on head or body in both sexes; eyes in ♂♂ in actual contact above for a distance at least as long as ocellar tubercle and sometimes even longer, with the upper facets always distinctly much coarser than lower ones; frons in ♀♀ usually with a more distinct and usually deep transverse depression; hypopygium of ♂♂ with the beaked apical joints more or less triquetrous basally, bird-head shaped, and with a crown or tuft of conspicuous stiffish bristly hairs above and the aedeagus usually without a ventral process . . . *a* (Group 1).

a. (*b*) Pubescence with a conspicuous and broad longitudinal band or stripe of frosty white hair-like scaling on each side of thorax above and with a conspicuous broad, transverse band of white scaling on abdomen above with the bristly elements, especially on thorax, well developed and long; wings with a distinct pattern in which the front half is very dark blackish brown or sooty black and with large conspicuous black spots on apical cross veins of first and second basal cells and at base of second submarginal cell and smaller spots or infusions at apex of first posterior cell and also at bases of second and third posterior cells, with the end of second longitudinal vein very rapidly bent upwards or very markedly sinuate and with the discoidal cell markedly truncate apically; legs with the tibiae and the tarsi distinctly paler, yellowish or pale yellowish red . . . . . 1 (Section 1).

1. (4) Wings without any appendices or stumps in marginal and second submarginal cells, with the anterior darkly infuscated part or half more or less well marked off from the posterior more hyaline part; pubescence with the paler elements on pleurae and sides of venter more rufous or reddish mauve in tint, with the transverse band of scaling on abdomen above more demarcated and more conspicuously white, the white band on side of thorax narrower and with darker scaling medially and discally on thorax above and also on head above . . . . . 2.
2. (3) Wings with only 2 submarginal cells, with 4 dark spots in the more hyaline posterior part: one at base of second submarginal cell, one at apex of first posterior cell, one on cross vein between discoidal and second posterior cells, and a smaller or minute one onvein at base of third posterior cell, and also with 2 larger spots on apical cross veins of basal cells; pubescence with the paler elements on sides of face, pleurae, and on sides of venter more rufous, purplish, or mauvish reddish . ♂ ♀ *lateralis* F. (p. 111).
3. (2) Wings with 2 or usually 3 submarginal cells, usually without rounded spots, but with infuscations along basal parts of veins and cross veins of second and third submarginal cells, along basal veins of second and third posterior cells, often broken up into spots and often with a more distinct spot near apex of vein between anal and axillary cells; pubescence with the paler elements on sides of face, on pleurae and sides of venter usually paler or more straw-coloured in certain lights ♂ ♀ *bivittatus* Lw. (*Triplasius*) (p. 114).
4. (1) Wings (text-fig. 5) with appendices or stumps in marginal and submarginal cells, which are often irregular, sometimes joined on to margin of wing and thus producing a reticulate appearance, with the anterior darker part less marked off from the posterior part, which itself is also mottled to a certain extent; pubescence with the paler elements on frons, on sides of face, on pleurae, and on sides of venter distinctly paler and even more straw-coloured whitish, with the transverse band of whitish scaling on abdomen above more diffuse and the scaling towards apical part of abdomen above more greyish, the white band on each side of thorax distinctly broader and with a broad central band of greyish white scaling on disc of thorax and also on frons . ♀ *namaquensis* n. sp. (p. 114).

b. (*a*) Pubescence without any conspicuous longitudinal band of white scaling on sides of thorax and without a broad, transverse band of white scaling on abdomen above, with the bristly elements or bristles, on thorax especially, shorter, less conspicuous and less shaggy; wings usually not uniformly and darkly infuscated in front half and without conspicuous spots or infuscations on cross veins and other veins and a darker anterior infuscation if present almost confined to costal cell or more usually to base of wings and alula, with the second longitudinal vein and vein between submarginal cells distinctly less rapidly bent up at right angles apically and with the discoidal cell more narrowed apically, subacute, or sometimes even acute apically; legs either entirely black or entirely yellowish *c.*

(*f*) Legs predominantly or entirely black, and even tibiae, when not as black as femora, are at least very dark blackish brown or very dark reddish brown; wings not apparently elongate and narrowish, with the vein between submarginal cells distinctly more S-curved, its base distinctly

more sinuate or bent before meeting the first posterior cell, with the second longitudinal vein more sinuous or bent upwards at its end, with the base of wings up to first cross veins either markedly, truncately, and conspicuously infuscated, or the basal part up to end of second basal cell and including the costal cell very darkly infuscated; pubescence always with much black hair or dark hair on the abdomen at least, and if sparsely black-haired the base of wings at least are darkly and truncately infuscated and with the rest of the pubescence on body above and below not uniformly or predominantly creamy yellowish, straw-coloured yellowish, pale yellowish to sericeous yellowish . . *d.*

d. (*e*) Antennae with joint 1 only about 1½–2 times as long as joint 2; eyes without any or with only a very slight or feeble, scarcely perceptible, sinuosity or emargination behind on each side; pubescence on thorax above shorter and with a more shorn off appearance, that on sides of abdomen not distinctly tuft-like and shaggy, that on first antennal joints and on face distinctly very much shorter and even if dense not long and bushy or shaggy, without any conspicuous spots or patches of brilliantly shining silvery whitish scaling on head, thorax, or abdomen, and if patches of coloured hairs or scaling are present as spots, these are dull and frosty whitish and antennal joint 1 is very short; wings with the second longitudinal vein straight and if slightly undulating antennal joint 1 at least is short, with the discal cross vein usually just beyond or much beyond middle of discoidal cell, rarely at about or near middle, and if near middle antennal joint 1 is short or first longitudinal vein is straight, with the basal comb usually well developed; hind femora usually with more numerous spines below and these beginning before middle or near base; hypopygium of ♂♂ with the neck region of basal parts more slender and more elongate, not broadened or arcuately dilated along lower apical margin, and if broadened antennal joint 1 is short and pubescence on it and face is not long and bushy . . . . 1 (Section 2).

1. (16) Wings with the second longitudinal vein straight and more rapidly bent upwards at its end, with the basal comb more conspicuously developed; hind margins of eyes scarcely perceptibly, or only feebly, sinuous or emarginate; pubescence on occiput, on frons anteriorly, and on thorax above very short and with a more distinct short and shorn-off appearance, the whitish spots on each side of frons or on abdomen above if present not brilliantly shining silvery whitish, that on body above usually not predominantly whitish and, if predominantly whitish, without shining silvery whitish patches of scaling on abdomen above and with that on pleurae and venter not coffee brownish to fulvous brownish; hypopygium of ♂♂ with the neck region of basal parts longer and more slender and its lower margin not arcuately dilated or broadened . 2.

2. (11) Larger forms, about 11–17 mm. long and with a wing-length of about 15–19 mm.; pubescence on thorax at least distinctly much shorter and very close cropped in appearance, without lateral and medial spots of white or fulvous depressed, hair-like scaling on abdomen above and without a row of white or fulvous spots of hair-like scaling on each side of venter, and if coloured spots or patches are present on abdomen above these are composed of tufts of erect hairs as long as the other hairs and,

if silvery scale-like patches are present on venter, only the extreme base of wings is truncately infuscated; wings with the dark infuscation confined to base, more truncated, not extending beyond bases of first and second basal cells and not reaching basal cross vein in costal cell and the second basal cell or costal cell clear like rest of wings; scutellum almost always with much reddish brown or ferruginous brownish . 3.

3. (4) Pubescence on abdomen above with a broad, conspicuous, transverse band of orange golden hairs, that on basal side black and that on apical side whitish to greyish white, that on thorax above and pleurae in ♂♂ black and in ♀♀ greyish white, due to black intermixed bristly hairs and bristles ♂ ♀ *bombiformis* Bezz. (p. 116).

4. (3) Pubescence on abdomen above without any medial transverse band of orange yellowish hairs, predominantly black on abdomen, only an apical tuft white, yellowish or orange yellowish to golden yellowish or with a central row of fulvous or orange yellowish spots or tufts on abdomen above in both sexes, that on thorax above and on pleurae in ♂♂ and in some ♀♀, also black but more often greyish, whitish, yellowish-buff to yellowish in ♀♀ and with or without intermixed blackish elements . 5.

5. (6) Pubescence with the tuft at apex of abdomen predominantly snow white or tinted with yellowish or orange yellowish only laterally below, not entirely deep orange yellowish, that on thorax above and on front half of pleurae in ♀♀ either whitish, greyish white to dull yellowish and without any black bristly hairs or bristles on occiput and front half of thorax or on pleurae in ♀♀, with the alular and squamal fringes pale or white in ♀♀; wings with the alula almost entirely blackish or dark as the basal infuscation on wings in both sexes . . . ♂ ♀ *analis* F. (p. 118).

6. (5) Pubescence with the tuft at apex of abdomen entirely deep yellowish or deep orange yellowish or if with much black hair there is a central row of large rounded tufts of orange yellowish hair on abdomen above, the pubescence on thorax above in ♀♀ dull greyish or bluish grey due to numerous intermixed black elements, even on occiput and frons, that on pleurae predominantly dark or blackish in ♀♀, and even that on entire thorax in ♀♀ may also be black as in ♂♂, with the alular and squamal fringes in both sexes dark or blackish; wings with the apical half or two-thirds of alula distinctly less infuscated and more hyaline than at base of wings in both sexes . . . . . 7.

7. (10) Pubescence on abdomen without a central row of large rounded orange yellowish or fulvous tufts in both sexes and without a row of whitish or silvery whitish patches or spots on sides of venter in ♀♀; wings with the discoidal cell more acute or subacute apically, a longish apical cross vein not being developed . . . . . 8.

8. (9) Wings with the discoidal cell more subacute apically and with a more distinct apical cross vein; pubescence on thorax and pleurae in ♂♂ black, that on frons, thorax above and upper parts of pleurae in ♀♀ greyish or bluish grey due to numerous intermixed black bristly hairs and bristles, that on pleurae in ♀♀ dark brownish, and the apical tuft on abdomen in both sexes less extensive and conspicuous; smaller form, about 12–15 mm. long and with a wing-length of about 15–17 mm.

♂ ♀ *analis* var. *waterbergensis* n. (p. 120).

9. (8) Wings with the discoidal cell very acute apically and without, or scarcely, any apical cross vein; pubescence entirely black above and below on thorax in both sexes, and that on abdomen also predominantly black in both sexes, but with the apical tuft of orange yellowish hair in both sexes more extensive, broader, and more conspicuous; larger species, more bulky, about 16½–17 mm. long and with a wing-length of about 18–19 mm. . . . . ♂ ♀ *haemorrhoidalis* Bezz. (p. 120).

10. (7) Pubescence on abdomen above in both sexes with a central row of large rounded tufts of orange yellowish or fulvous hair, and in ♀♀ with a row of small rounded dull silvery, whitish spots of hair-like scaling on each side of venter, the pubescence on thorax above and on pleurae in ♂♂ entirely black, but that on thorax above in ♀♀ bluish grey due to numerous intermixed black elements; wings with the discoidal cell truncate apically, a well-developed apical cross vein being present ♂ ♀ *fulvonotatus* Wied. (p. 121).

11. (2) Smaller species, not longer than about 11 mm. and with a wing-length not longer than about 12 mm.; pubescence on thorax at least distinctly longer and with a comparatively less shorn-off appearance, with distinct lateral and central spots of either white or fulvous depressed hair-like scaling on abdomen above in both sexes and with a row of spots or a patch of depressed, hair-like, white or fulvous scaling on each side of venter as well and in both sexes; wings, apart from the usual basal infuscation, also with the costal cell and first basal cell or even the basal parts of marginal and first submarginal cells infuscated or distinctly tinged or with the basal infuscation extending to apices of first and second basal cells; scutellum entirely black as rest of body above 13.

12. (13) Pubescence on body above and below predominantly black in ♂ at least, with only a spot at base of each wing, a central row of rounded spots on abdomen above and 4 contiguous spots on each side of venter of deep orange yellowish or fulvous scaling; wings with the costal cell and the base up to middle of first basal cell and to end of second basal cell and also the alula more or less sooty blackish, with the discal cross vein at about, or scarcely beyond, middle of discoidal cell and with the alular fringe entirely dark; antennae with joint 1 relatively shorter and less than 2 times as long as 2 . . . . . ♂ *vansoni* Hesse (p. 123).

13. (12) Pubescence on body above and below in both sexes predominantly white or with much white hair, that on head, thorax in front, as 2 discal stripes on thorax above, that on pleurae and on 3 rows of patches or spots on abdomen above and on confluent spots on each side of venter white, with the spots on abdomen composed of white scaling, with the bristly elements towards apex of abdomen white-tipped, with the pubescence on venter and even on coxae gleaming golden to yellowish or fulvous golden; wings either with the extreme basal infuscation dark blackish brown and the costal cell and basal half of first basal cell yellowish brown or with a more extensive pattern in which the base is blackish brown, the costal cell and basal half of first basal cell yellowish and the basal halves of marginal and first submarginal cells and the apical half of first basal cell brownish, the brownish even extending down apical

cross veins of second basal cell towards apex of anal cell, with the alula more hyaline or also darkish with the discal cross vein distinctly beyond, or much beyond, middle of discoidal cell and with the alular fringe with much whitish hair; antennae with joint 1 relatively longer and quite 2 times as long as 2, and if shorter the pubescence on body is at least whitish . . . . . 14.

14. (15) Wings with a more extensive dark pattern, consisting of a very dark brown or blackish brown base, passing into a yellowish costal cell and yellowish basal half of first basal cell and a brownish or even dark brownish basal half of marginal cell, basal half of first submarginal cell and apical half of first basal cell, these latter brownish infuscations forming a characteristic quadrate dark patch which also faintly extends down across apical cross veins of second basal cell towards apical part of anal cell, with the veins in wings paler but with the apical cross veins of basal cells distinctly more infuscated and spot-like, with the discal cross vein considerably beyond middle of discoidal cell, with the alula also darker and even more brownish; pubescence with the bristly elements on coxae and to a certain extent also their pubescence deeper yellowish golden or fulvous as on venter; eyes in ♂♂ almost touching at a point a little in front of front ocellus, then rapidly diverging apically

♂ ♀ *hypoxanthus* Lw. (p. 125).
(Syn. =*plagiatus* Bezz.)

15. (14) Wings with only the extreme base very dark blackish brown and the costal cell, narrow basal part of marginal cell and upper part of basal half of first basal cell slightly yellowish to yellowish brownish, the greater part of wings thus hyaline, with the veins on the whole distinctly darker, and the apical cross veins of basal cells less distinctly spot-like, with the discal cross vein only a little beyond middle of discoidal cell, with the alula clearer; pubescence on venter also fulvous or yellowish, but that on coxae much paler and more whitish; eyes in ♂♂ in actual contact for a longer distance, at least as long as, or even slightly longer than, ocellar tubercle before diverging apically

♂ ♀ *acroleucus* Bezz. (p. 128).

16. (1) Wings with the second longitudinal vein undulating and less rapidly bent upwards at its end, with the basal comb distinctly smaller and less developed; hind margins of eyes distinctly more perceptibly and more deeply sinuous or emarginate; pubescence on occiput, on frons anteriorly, and even on thorax anteriorly slightly longer and more shaggy in appearance, the whitish tufts on each side of frons and the patches of white scaling on abdomen above more in form of brilliantly shining silvery white scaling, with the pubescence on body above predominantly whitish, that on pleurae and venter brownish, coffee brownish to dark fulvous brownish; hypopygium of ♂ with the neck region of basal parts much shorter and less slender, its lower margin distinctly more arcuately dilated or broadened . . . . . ♂ *arnoldi* n. sp. (p. 129).

c. (*d*) Antennae with joint 1 distinctly much longer and much more than 2 times as long as 2 and, if about 2 times as long as 2, with second longitudinal vein undulating; eyes with a distinct and deeper, more perceptible sinuosity or emargination behind on each side; pubescence on occiput

and thorax above distinctly longer, more bushy and shaggy, that on sides of abdomen distinctly more tuft-like and bushy, relatively longer, that on first antennal joints and face in both sexes distinctly denser, longer, and more shaggy or bushy, with conspicuous spots or patches of brilliantly shining silvery whitish scaling on head, thorax above and on abdomen above and sometimes with opalescent, reddish or cinnabar reddish scaling on abdomen above as well, especially in some ♀♀; wings with the second longitudinal vein undulating, with the discal cross vein before middle of discoidal cell, rarely tending to be at about middle of discoidal cell and, if near middle, the second longitudinal vein is undulating, with the basal comb smaller and less developed; hind femora usually with fewer spines below and these more or less confined to apical half below; hypopygium of ♂♂ with the neck region of basal parts much shorter and less slender, its lower margin distinctly broadened or arcuately dilated . . . . . 1 (Section 3).

1. (2) Antennae with joint 1 very much shorter, only about 2 times as long as 2; pubescence on first antennal joints, face, occiput, and thorax above distinctly much shorter, not very long and bushy or shaggy, predominantly white, that on abdomen distinctly shorter and not so conspicuously tuft-like on sides and also with much whitish hair, the apices of the hairs, especially towards apex of abdomen, white-tipped, the pubescence on pleurae and venter more brownish or rather more fulvous brownish and with the patches or spots of silvery scaling on abdomen above less obvious and more hidden by the rest of pubescence; wings with the discal cross vein at about, or even just beyond, middle of discoidal cell; hind femora with slightly more numerous spines, about 10–11, below and beginning from near base to apex
♂ *arnoldi* n. sp. (p. 129).

2. (1) Antennae with joint 1 very much longer, elongate and longer than 2, at least 3 or 4 times as long as 2; pubescence on first antennal joints, on face, occiput, and thorax distinctly longer, more bushy or shaggy, predominantly black or very dark on head at least, that on front part of thorax may be paler, that on abdomen distinctly longer, more tuft-like and bushy on sides even in ♀♀, and also predominantly black or with much dark hair, that on pleurae on the whole also darker and more often also predominantly blackish and with the spots or patches of silvery white scaling on abdomen above very conspicuous and striking; wings with the discal cross vein distinctly before, or much before, middle of discoidal cell; hind femora with fewer spines below, and these more or less confined to apical half . . . . . 3.

3. (6) Wings with a very extensive and conspicuous dark or blackish brown pattern, extending to level of discal cross vein as follows: the basal half of marginal cell, the base of first submarginal cell and a confluent spot on discal cross vein, the medial part of first basal cell, the apical part of second basal cell across its apical veins and the basal parts of anal and axillary cells very dark blackish brown, the outer limits of this infuscation being thus oblique and jagged, with the costal cell, base of wings, the medial basal parts of first and second basal cells and to a certain extent the extreme base of anal cell more yellowish or pale

yellowish brown, with the apical part of first basal cell more or less hyaline and with a distinct whitish spot at base of marginal cell and another near apex of second basal cell, with the discoidal cell distinctly more truncate apically, a fairly long apical cross vein being present; hypopygium of ♂ with the lower edge in neck region slightly less arcuately broadened . . . . . 4.

4. (5) Wings with a distinct, though variable, dark infusion or infuscation extending down the vein between anal and fourth posterior cells towards hind border of wing . . . . . ♂ ♀ *delicatus* Wied. (p. 132).

5. (4) Wings without any infusion or infuscation extending down the vein between anal and fourth posterior cells ♂ ♀ *delicatus* var. *mutilatus* Bezz. (p. 132).

6. (3) Wings predominantly vitreous or glassy hyaline, without any extensive dark pattern, only the base up to or near basal cross vein in costal cell being truncately infuscated blackish brown, brownish, or yellowish brown, with the discoidal cell distinctly more acute or subacute apically, the apical cross vein being much shorter or sometimes even wanting; hypopygium of ♂♂ with the lower outer margin in neck region of basal parts more distinctly or typically arcuately broadened or dilated . 7.

7. (14) Pubescence on sides of abdomen without fulvous, yellowish, orange yellowish or whitish hair or conspicuous tufts of longish silvery whitish hair-like scales and without distinct and conspicuous reddish golden, orange golden, or even opalescent greenish or bluish hair-like scaling or scales on scutellum and especially abdomen above, the hair on front part of thorax in both sexes usually less extensively pale; squamal fringe very dark or blackish in both sexes . . . . . 8.

8. (9) Pubescence on occiput, antennae, face, and genae distinctly longer, that in a tuft behind wings and above halteres on each side straw-coloured whitish; antennae with joint 1 distinctly longer, quite 5, more than 4, times as long as 2 and with joint 3 relatively shorter and subequal in length to joints 1 and 2 combined; wings with the basal infuscation and alula sooty blackish, with the veins very dark blackish brown, the discoidal cell acute apically, and the axillary lobe rather narrowish ♂ ♀ *plorans* Bezz. (p. 134).

9. (8) Pubescence on occiput, antennae, face, and genae distinctly and comparatively shorter, the tuft behind wings and above halteres entirely black; antennae with joint 1 distinctly shorter and only about 4, or only a little more, times as long as 2 and with 3 relatively longer and longer than 1 and 2 combined; wings with the basal infuscation and alula less dark, more brownish or yellowish brown and, if black, antennal joints 1 and 3 are distinctly shorter, with the veins paler and even yellowish, with the discoidal cell subacute, less acute and even with a very distinct apical cross vein and with the axillary lobe distinctly broader and more subangularly rounded opposite apical part of alula . . . . . 10.

10. (11) Proboscis longer, about 4½–5 mm.; pubescence on body above and below predominantly or almost entirely black, that on thorax in front in ♂♂ less extensively pale or fulvous, and that on occiput and on thorax in front in ♀♀ more obscurely pale and more fulvous brown, but rather sparse, with the silvery spots on body less developed; wings with the

veins darker brownish, with the basal infuscation darker and more blackish brown . . . . . ♂ ♀ *melanolomus* n. sp. (p. 135).

11. (10) Proboscis shorter, about 3⅔–4 mm. long; pubescence on body above and below, though predominantly black, with that on thorax in front in ♂♂ more extensively greyish white, straw-coloured yellowish to pale fulvous, and in ♀♀ also distinctly more extensively straw-coloured yellowish or fulvous, and with the spots of silvery white scaling on body above in ♀♀, and on abdomen in ♂♂ more conspicuous and more developed; wings with much paler and pale yellowish veins, and with a paler basal infuscation . . . . . 12.

12. (13) Pubescence with the bristly hairs on occiput, anterior half of thorax and sides of thorax in ♀♀ with more dark elements, only a small tuft of fulvous hair on each humerus and anteriorly with the beginnings of 2 admedian stripes of silvery scaling, with the hair on thorax anteriorly and more medially in ♂♂ greyish to very pale straw-coloured whitish and without brownish golden scaling on disc of thorax in ♀♀; interocular space in ♀♀ slightly broader and a little more than 2 times as broad as ocellar tubercle; wings with the discal cross vein much before middle of discoidal cell . . . . . ♂ ♀ *lugens* Bezz. (p. 137).

13. (12) Pubescence with the bristly hairs on occiput, the fine erect hairs on front half of thorax, along sides of thorax above wings on each side and intermixed ones on mesopleuron in ♀ straw-coloured yellowish but with golden gleams, with the fine scaling on thorax brownish golden, with the following spots of silvery white scaling: 4 on frons, a tuft on each side of face, a small spot behind eyes, a spot on the humerus, another just in front of wings, an admedian patch on each side in front and a small admedian one on each side in line with those in front of wings, a large spot on each side in front of scutellum, an elongate transverse patch at base on each side of tergite 2, small central spots and a patch on each side basally of tegrites 3–5; interocular space in ♀ slightly narrower, only about 2 times as broad as tubercle; wings with the discal cross vein just before middle of discoidal cell . . ♀ *tuckeri* n. sp. (p. 139).

14. (7) Pubescence on sides of abdomen with conspicuous and longish tufts of silvery whitish hair-like scaling or with a conspicuous bushy tuft of orange yellowish or yellowish hair, with sometimes conspicuous and dense reddish golden, orange golden, or even opalescent greenish or bluish scales on body above and especially scutellum and abdomen, the pubescence on thorax in front, occiput, and pleurae, and sometimes even on head with more extensive pale hair in both sexes; squamal fringe much paler, yellowish or snow-white to silvery white . . . . 15.

15. (20) Pubescence on body above without conspicuous or dense depressed reddish golden, deep golden, or purplish red hair-like scaling or even with flattened opalescent greenish or bluish scaling in addition to spots of silvery scaling, with pubescence on pleurae, in entire lower part of metapleural tuft and predominantly on abdomen in both sexes black or very dark and with the tufts of snow-white hairs or hair-like scaling on sides basally of tergites 3 and 4 longer and more conspicuous and with the silvery tuft on each side of face more extensive and more conspicuous

16.

16. (17) Pubescence with the tuft of snow-white hairs and silvery white hair-like scales on sides of tergites 3 and 4 basally in ♂♂ longer, the pubescence on occiput and front part of thorax in both sexes straw-coloured whitish to yellowish; wings more blackish at base, with the discoidal cell more often subacute and with the discal cross vein just before middle of discoidal cell . . . . . ♂ ♀ *ornatus* Wied. (p. 140).

17. (16) Pubescence with the tufts of white or silvery white hairs and scales on sides of tergites 3 and 4 basally in ♂♂ shorter, the pubescence on occiput and on thorax, especially in ♀♀, black or predominantly black; wings more yellowish at base and with the discal cross vein slightly nearer base of discoidal cell . . . . . 18.

18. (19) Sternopleuron in ♀ without a conspicuous patch of silvery scales ♂ ♀ *kilimandjaricus* Bezz. nec Speis. (p. 140).

19. (18) Sternopleuron in ♀ with a conspicuous patch of silvery white scales ♀ var. of *ornatus* Wied. (p. 142).
(Labelled as *kilimandjaricus* by Bezzi.)

20. (15) Pubescence on body above with distinct, conspicuous, and sometimes dense, depressed reddish golden, deep golden, or purplish red hair-like scaling, and in some forms even with flattened, opalescent greenish or bluish scaling in addition to spots of silvery white scaling, with more pale or even yellowish elements on body, the pubescence on pleurae, in front lower part of metapleural tuft, and in some forms even on abdomen with much or more pale hairs, with the tufts of silvery white hair-like scales on sides basally of tergites 3 or 3 and 4 or 3–5, if present, distinctly shorter and less conspicuous in both sexes and with the silvery tuft on each side of face usually smaller and less extensive, and if conspicuous the body has reddish golden or golden scaling above . . . 21.

21. (22) Pubescence in ♀♀ at least with conspicuous flattened silvery white scaling on mesopleuron, propleural parts, front coxae, femora, and the tibiae in addition to the spots and tufts of silvery white scaling on head, thorax, and abdomen above, with some flattened greenish, bluish, and purplish red, opalescent scaling on body above, the pubescence on abdomen and rest of body more straw-coloured, even that on first antennal joints and venter below with more straw-coloured elements, the pubescence also relatively shorter on antennae and also with some long, flattened, silvery white scale-like hairs on sides of antennal joint 1 ♀ *okahandjanus* n. sp. (p. 143).

22. (21) Pubescence in both sexes without flattened silvery white scaling on propleural parts, front coxae, femora, and tibiae, that on legs usually dark though they may gleam greyish in certain lights, if with whitish ones on pleurae body above with reddish golden or golden scaling, without any flattened, greenish or bluish opalescent scales, the pubescence on first antennal joints longer and blackish, that on abdomen with more black hair or if with pale ones with a large tuft of orange hair on sides or with deep golden scaling above without any conspicuous silvery white scale-like hairs on sides of antennal joint 1 . . . . . 23.

23. (24) Pubescence on sides of abdomen predominantly black even if more conspicuous in ♂♂, with a more distinct and conspicuous tuft of silvery white hair-like scales on sides basally of tergite 4 in ♂♂, the pubescence

on thorax above in front more whitish or straw-coloured whitish, with the fine depressed scaling on body above slightly duller and less reddish golden, with some patches of dense silvery white scaling on each side of venter in ♀♀; wings with the basal infuscation paler and more yellowish, only extreme base very dark and with the alula very pale, more subopaquely whitish . . . . ♂ ♀ *rufiventris* Macq. (p. 144).

24. (23) Pubescence on sides of abdomen in both sexes with a very conspicuous tuft of orange yellowish to orange golden hair from base of tergites 2–4, with only a few inconspicuous silvery whitish scales on sides basally of 3 and 4 in ♂♂, more distinct on sides of abdomen in ♀♀, the pubescence on thorax above in front distinctly more yellowish to pale golden yellowish, with the scaling on body above distinctly deeper reddish and gleaming more reddish golden, with only dense fulvous hairs and very few silvery scales on side of venter in ♀♀; wings with the basal infuscation distinctly darker and more dark brownish to blackish brown and with the alula also distinctly darker and more brownish . . ♂ ♀ *elegans* Wied. (Syn. =*furiosus* Walk.) (p. 145).

f. (*c*) Legs predominantly or entirely yellowish, and if femora are darkened they are so only basally; wings apparently more elongate and narrowish in appearance, with the vein between the submarginal cells distinctly less S-curved and straighter, its base less sinuous or bent down before meeting first posterior cell, with the second longitudinal vein slightly less sinuous or bent upwards at its end, without a well-marked-off and truncated basal infuscation and without more extensive very dark infuscations, the base, costal cell, basal half of first basal cell, and the second basal cell may, however, be slightly tinged more yellowish or yellowish brown than rest of wings; pubescence on body above and below predominantly whitish, straw-coloured yellowish, creamy yellowish to pale golden yellowish and black elements may be present only on frons, antennae, and face or as transverse bristles or even tufts of hair on sides of abdomen *g*.

g. (*h*) Wings with the first posterior cell not sharply and angularly acute apically, normal and with a normally long stalk, with the vein separating submarginal cells slightly more S-curved and not almost straight, with the discal cross vein much or very much before middle of discoidal cell, the first and second basal cells sometimes almost equal in length and almost *Systoechus*-like; head with antennal joint 1 relatively shorter, less than $3\frac{1}{2}$ times as long as joint 2, with the interocular space in ♀♀ very much broader, very much more than $1\frac{1}{2}$–2 times as broad as ocellar tubercle, with the frons in ♀♀ very much broader and normally broadly diverging apically, with the proboscis shorter and only about 4–5 mm. long, with the facets on upper anterior part of eyes in ♀♀ not remarkably coarser and with face broader in both sexes; abdomen not truncated in appearance and the last few segments not telescoped or tucked in below segment 5; pubescence with that on face less dense and not overhanging face in front and tuft-like, with the dark or blackish elements if present on sides across hind margins of abdominal tergites less conspicuously and markedly tuft-like, and if dense and suggesting tufts abdomen is not truncated and first posterior cell is not apically acute, with the dark or black transverse bristles across abdomen, in ♀♀ at least, on the whole

stouter; hypopygium of known ♂♂ with the inner apical angles of basal parts less prominent and with the beaked apical joints tapering to a distinct sharp point or beak . . . . . 1 (Section 4).

1. (4) Wings with the discal cross vein very much before middle of discoidal cell, the first and second basal cells being almost equal and almost *Systoechus*-like; pubescence on body, even in ♂♂, more yellowish or creamy yellowish, that on body below also more creamy yellowish and not strikingly whitish, with less dense and tuft-like blackish elements on sides of abdomen in ♀♀, and sometimes without any blackish hairs on sides of abdomen in ♂♂; antennae sometimes reddish or yellowish, with joint 1 appearing relatively shorter and with joint 3 sometimes slightly more thickened or broadened basally; claws either sickle-shaped or nearly straight, and the pulvilli short or reaching middle of claws . 2.
2. (3) Claws normally sickle-shaped, distinctly curved down apically, and the pulvilli long, reaching and extending beyond middle of claws; antennae entirely black, with joint 3 markedly club-shaped, very much broadened basally; pubescence with a tuft of silvery whitish scaling on each side of frons anteriorly in ♂♂ at least, without any black or dark bristly hairs on post-alar calli and on sides of abdomen in ♂♂; wings with the discoidal cell acute apically; femora in ♂♂ darkened at base
♂ *permixtus* n. sp. (p. 145).
3. (2) Claws almost straight, longer, and with the pulvilli short and confined to base, not reaching middle of claws in both sexes; antennae with joints 1 and 2 and basal half or three-quarters of 3 pale yellowish red in both sexes, with joint 3 slightly longer, more slender, and much less broadened basally; pubescence with the tuft on each side of frons anteriorly more yellowish or sericeous yellowish in both sexes, with a few intermixed blackish hairs or bristly hairs on post-alar calli in both sexes, and also with black bristles on scutellum and transversely across abdomen in ♀; wings with the discoidal cell subacute apically, a distinct apical cross vein being present; femora in both sexes entirely yellowish
♂ ♀ *subacutus* n. sp. (p. 148).
4. (1) Wings with the discal cross vein, though much before middle of discoidal cell, farther away from its base, the first basal cell thus distinctly much longer than, and not appearing subequal to, second basal cell; pubescence on body paler and distinctly more whitish even in ♀♀, that on body below distinctly more contrastingly whitish, that on thorax above and on abdomen above and even on venter however with some or much yellowish brown or brownish golden, with denser and more numerous black bristly hairs or bristles on sides of abdomen, especially on segment 3, in addition to the dark transverse bristles and sometimes with more numerous intermixed black bristly hairs on ocellar tubercle, frons, face, and genae in some ♀♀; antennae black, with joint 1 appearing relatively longer and with joint 3 usually more slender and rod-like, only slightly broadened basally; claws sickle-shaped and bent down apically, with the pulvilli long in both sexes, reaching and extending beyond middle of claws . . . . . 5.
5. (6) Pubescence on antennae, face, and genae with intermixed black hairs in both sexes, that on sides of tergites 1 and 2 and more so on 3 with more

blackish elements, especially in ♀♀; head with antennal joint 1 only about $2\frac{1}{3}$ times as long as 2, with joint 3 more rod-like and less broadened basally, with the interocular space in ♀♀ slightly narrower and only about 2 times as broad as tubercle, with the proboscis slightly more obviously spinulated; hind femora with about 13 spines below

♂ ♀ *cockerelli* n. sp. (p. 149).

6. (5) Pubescence on antennae, face, and genae, in ♀♀ at least, entirely whitish, that on sides of tergite 1 white, and the black bristly hairs and hairs on sides of tergites 2 and 3 less conspicuous in ♀♀ at least; head with antennal joint 1 quite 3 times as long as 2, with 3 slightly more distinctly broadened basally, with the interocular space in ♀♀ slightly broader, about $2\frac{1}{3}$ times as broad as tubercle, with the proboscis more finely and scarcely visibly spinulated; hind femora with only about 8–9 spines below . . . . . ♀ *karasanus* n. sp. (p. 151).

h. (*g*) Wings with the first posterior cell attenuated and very sharply acute apically and provided apically with a short stalk, with the vein between submarginal cells almost straight, with the discal cross vein, though also before middle of discoidal cell, distinctly nearer middle, the first basal cell thus very much longer than second basal cell; head with antennal joint 1 relatively longer, about $3\frac{2}{3}$–4 times as long as joint 2, with the interocular space in ♀♀ remarkably narrow, only about $1\frac{1}{2}$, scarcely 2, times as broad as ocellar tubercle, with the frons in ♀♀ remarkably narrow, the inner margins subparallel for a good distance before gradually diverging apically, with the face in both sexes, but especially in ♀♀, also remarkably narrow, with the proboscis usually more than 5 mm. long, with the anterior upper facets in eyes of ♀♀ distinctly very much coarser; abdomen truncated in appearance, the last few segments telescoped or tucked in below segment 5; pubescence with that on face denser and overhanging face in front, tuft-like, with the blackish elements on sides across hind margins of tergites 2–5 distinctly and conspicuously tuft-like, with the transverse black bristly elements on abdomen finer and less stoutish; hypopygium of ♂ (text-fig. 21) with the inner apical angle and process of basal parts long, prominently produced, rounded apically, rabbit-ear like and with the beaked apical joints broader, more flattened and strap-like, broadly rounded apically

♂ ♀ *mollis* Bezz. (Section 5)
(Syn. = *disjunctus* Bezz.) (p. 153).

C (B) Legs entirely or predominantly yellowish and even if femora be darkened the spines and spicules are always yellowish or pallid; pubescence on body entirely or predominantly whitish, yellowish, or golden yellowish, without any black hair on body, and when blackish or dark elements are present they are found only in form of blackish transverse bristles or bristly hairs across hind margins of the abdomen, without any tufts or spots of resplendent, shining, silvery whitish scales on body; eyes in ♂♂ rarely in actual contact for a distance as long as ocellar tubercle, usually subcontiguous or more often separated by width of front ocellus, front part of tubercle, or even by width of tubercle, with the upper facets of eyes only distinctly and visibly coarser in forms with the eyes in subcontact; frons in ♀♀ usually with a shallower transverse depression which

is sometimes very shallow and more medial, not markedly transverse; hypopygium of ♂♂ with the beaked apical joints variable in shape, elongated and narrowish, and when shortish and broadened not typical bird-head shaped and not markedly triquetrous at base, with the bristly hairs above on beaked joints usually not conspicuously concentrated and tuft-like, and with or without a ventral aedeagal process 1 (Group 2).

1. (12) Antennae and proboscis predominantly or entirely yellowish, yellowish red or pale reddish brown, with only the apex of proboscis darkened and with antennal joint 3 always reddish or entirely reddish; wings with the discal cross vein always distinctly much before middle of discoidal cell 2.
2. (7) Claws almost straight, with the pulvilli short, confined to base and not reaching middle of claws; scutellum black or very dark; wings in ♂♂ more extensively tinged yellowish or pale yellowish brown, only the apical part being more hyaline, almost entirely hyaline in ♀♀, with the basal comb very vestigial, with the alula more reduced, poorly developed and not prominently lobe-like, without any indication or trace of spot-like infuscations on apical cross veins of basal cells; pubescence distinctly longer and more fluffy, especially in ♂♂, without any distinctly visible stoutish bristles or bristly elements in front of wings or across hind margins of abdomen in both sexes, predominantly sericeous whitish, straw-coloured whitish to very pale sericeous yellowish in ♂♂ and pale sericeous yellowish in ♀♀; head with the face distinctly much shorter, less developed and not spout-like, with the interocular space in ♂♂ as broad as tubercle but sides less rapidly diverging anteriorly, the interocular space in ♀♀ less than 3 times as broad as tubercle; smaller species, about 3½–6 mm. long and with a wing-length of 4–6½ mm., with the thorax more subglobularly prominent and abdomen more cordiform; hypopygium of ♂ (text-fig. 22) without a ventral aedeagal process and with the basal strut markedly or relatively more elongated . . 3.
3. (6) Face paler and more pallid or yellowish in both sexes; pleural parts in both sexes usually with much red or even entirely reddish and red on abdomen in ♂♂ conspicuous on sides and across hind margins, and often entire apical part is reddish; pubescence in ♂♂ usually paler and more sericeous whitish and even in ♀♀ also paler; larger forms, about 4–6 mm. long and with a wing-length of about 5–6½ mm. . . . . 4.
4. (5) Abdomen in ♂♂ more extensively and conspicuously reddish on sides, the entire apical part being also almost entirely reddish; head with antennal joint 3 tending to be pale yellowish red like 1 and 2 and with joint 1 apparently longer, with the proboscis usually stouter and less than 3 mm. long; pubescence sericeous whitish or frosty whitish in ♂♂ and very pale in ♀♀ . . . . . ♂ ♀ *globulus* Bezz. (p. 157).
(Typical Namaqualand forms.)
5. (4) Abdomen in ♂♂ less extensively reddened on sides and the apex less conspicuously red; head with antennal joint 3 tending to be more brownish and with joint 1 apparently relatively shorter, with the proboscis distinctly more slender and slightly longer, about 2½–3½ mm. long; pubescence more pale creamy yellowish or pale sericeous yellowish in both sexes . . . . . ♂ ♀ *globulus* Bezz.
(Karoo form) (p. 158).

6. (3) Face very dark or black in both sexes; pleural parts predominantly black in both sexes and even abdomen in ♂♂ predominantly black; pubescence in both sexes slightly more distinctly yellowish; small form, only about 3½–4 mm. long and with a wing-length of only about 4–5 mm.

♂ ♀ *globulus* Bezz. (p. 159).

(Small Namaqualand form.)

7. (2) Claws normally sickle-shaped, their apices curved down, with the pulvilli much longer, reaching and extending beyond middle of claws; scutellum entirely pale ferruginous reddish; wings with the base, costal cell, basal parts of marginal and first submarginal cells, more than basal half of first basal cell and greater part of second basal cell tinged subopaquely yellowish brown, the base being more yellowish, the rest of the wings in both sexes hyaline, with the basal comb more conspicuously developed, the alula distinctly more strongly developed and more lobate, with a distinct, though sometimes faint, spot-like infuscation on apical cross veins of basal cells; pubescence distinctly shorter and with a more shorn off appearance on thorax in both sexes, that on face shorter and sparser, with distinct macrochaetal bristles in front of wings and in ♀♀ at least with transverse bristles on abdomen, predominantly deeper yellowish, more golden to brownish or reddish golden in both sexes; head with the face distinctly more prominent and produced, sometimes more or less spout-like, with the interocular space in ♂♂ as broad as front ocellus or front part of ocellar tubercle or even as broad as tubercle, then more rapidly diverging apically, with the space in ♀♀ about 3½–4⅓ times as broad as tubercle; larger species, about 6–12 mm. long and with a wing-length of about 7½–12½ mm., with the thorax not convexly prominent and abdomen not so markedly cordiform; hypopygium of ♂♂ with a distinct ventral aedeagal process below . . 8.

8. (11) Proboscis remarkably long and straight, about 6–10 mm.; head with the face markedly prominent, more produced and more spout-like, with the interocular space in ♀♀ relatively narrower, about 3½, or a little more, times as broad as tubercle, with antennal joint 3 longer and quite 1½ times as long as 1 and 2 combined; pleurae with less yellowish, the third antennal joints as pale as 1 and 2, the proboscis is more extensively reddish, and in ♀♀ the hind margins on side of abdomen are not reddened; pubescence on frons and face much sparser and shorter, that on abdomen above in both sexes denser and in ♀♀ with longish erect hairs in addition to transverse bristles, that on pleurae pale pink mauvish and with the bristles on body above not or scarcely gleaming whitish at their apices; wings with the infuscated part slightly darker and more yellowish brown or brownish, the infuscation more diffuse, and with the spot-like infuscations on apical cross veins of basal cells more conspicuous; hind femora with about 7–12 comparatively stout spines below; hypopygium of ♂ (text-fig. 23) with the apex of aedeagus very slender and curved upwards and with the ventral aedeagal process acute apically and curved downwards . . . . . 9.

9. (10) Wings with the dark brownish infuscation basally more diffuse, less marked off, the basal half of marginal cell and first submarginal cell being also infuscated, with the spots on cross veins also more diffuse; pubescence

in ♂♂ more golden or brownish golden and that towards apex of abdomen more creamy yellowish, that on face sparse; hind femora with about 7–10 spines below . . . . ♂ ♀ *eurhinatus* Bezz. (p. 159).

10. (9) Wings with the dark brownish infuscation basally more distinctly marked off, the basal half of marginal cell and first submarginal cell being almost hyaline and the spots on cross veins less diffuse; pubescence in ♂ slightly paler, more creamy yellowish and that towards apex of abdomen more whitish, that on face slightly denser; hind femora with about 11–12 spines below . . . ♂ *eurhinatus* var. *bechuanus* Hesse (p. 162).

11. (8) Proboscis very much shorter, only about 3–5 mm. long; head with the face, though prominent, less produced, with the interocular space in ♀♀ relatively broader, about 4–4⅓ times as broad as ocellar tubercle, with antennal joint 3 slightly shorter and not 1½ times as long as 1 and 2 combined; pleurae with more yellowish in both sexes, the third antennal joint usually darker and the proboscis also more extensively darkened below and in ♀♀ the hind margins on side of abdomen are distinctly and broadly reddish; pubescence on frons and face denser and slightly longer, that on occiput also longer, that on abdomen above, especially in ♀♀, distinctly less dense, shorter and with fewer long erect hairs and, apart from transverse bristles, with dense depressed hair-like scaling, that on pleurae slightly paler pinkish mauve and with the bristles on body above more gleaming whitish at their apices; wings with the infuscated part paler and more yellowish, less diffuse and with the spot-like infuscations on cross veins less distinct; hind femora with about 5–8 more slender spines below; hypopygium of ♂ (text-fig. 24) with the apex of aedeagus straight and shorter, not curved upwards, and with the ventral aedeagal process smaller, horizontal, and rounded apically
♂ ♀ *brachyrrhynchus* Bezz. (p. 162).

12. (1) Antennae and proboscis entirely or predominantly black, or antennal joint 3 and by far the greater part of proboscis black, only the extreme base of proboscis being sometimes yellowish, and if antennae are predominantly yellowish the position of discal cross vein is different; wings with the discal cross vein at middle or distinctly beyond middle of discoidal cell, and when rarely just before middle the antennae and proboscis are predominantly black . . . . . 13.

13. (20) Wings with the first posterior cell distinctly and sometimes very markedly attenuated and acute apically, provided with a very short stalk, this stalk being usually very much shorter than rest of vein separating first posterior and second submarginal cells, sometimes even absent and the first posterior cell thus sessile or even almost opening on hind border, with the vein between first and second posterior cells straight, never even slightly sinuous or bent up at its end where it joins the part of third longitudinal vein (M_1+R_5) separating off the second submarginal cell and with this latter vein always much straighter . . . . 14.

14. (15) Wings with the first posterior cell distinctly sessile on hind border, its apical part thus less sharply acute, there being no stalk whatever, with the discal cross vein at about the middle of discoidal cell, with the third posterior cell (text-fig. 25, III) more or less rhomboidal, all its sides tending to be equal, with the basal comb poorly developed; scutellum

predominantly black, only narrowish hind margin reddish, and face, head below, and pleurae also predominantly dark; pubescence longer and that on thorax above in ♂ at least longer and more recumbent, not with a shorn-off appearance, gleaming almost silvery whitish on body above and entirely frosty white below; head with the eyes in ♂ separated above by a space as broad as front part of ocellar tubercle or tubercle itself, with antennal joint 3 markedly broadened near base, then more rapidly narrowed along lower margin; hypopygium of ♂ (text-fig. 26) with the ventral aedeagal process recurved apically and with the basal strut more broadish . . . . ♂ *rhomboidalis* n. sp. (p. 164).

15. (14) Wings with the first posterior cell very sharply and angularly acute apically, not roundly sessile on hind border but provided with either a very short stalk or a longer one, with the discal cross vein distinctly and even much beyond middle of discoidal cell, with the third posterior cell not markedly rhomboidal, its sides being markedly or normally unequal in length, with the basal comb more strongly and more conspicuously developed; scutellum predominantly pale reddish yellow or pale reddish brown, and face, head below, and pleural parts with more yellowish; pubescence on body above distinctly shorter in both sexes, that on thorax above in ♂♂ with a more shorn off appearance, dull creamy whitish or yellowish to sericeous or golden yellowish, and if gleaming whitish and almost frosty whitish below first posterior cell is angularly acute and face is very pallid; head with the eyes in known ♂♂ contiguous or subcontiguous above or only separated by front ocellus, with antennal joint 3 less markedly and rapidly broadened below near base, and if much broadened basally the apical part is more slender, pubescence is yellowish above and (or) first posterior cell is angularly acute apically; hypopygium of known ♂♂ with the ventral aedeagal process, if present, differently shaped . . . . . 16.

16. (17) Pubescence on body predominantly dull whitish or creamy and creamy whitish, that below distinctly more whitish to chalky whitish, and that towards apical part of abdomen in ♂♂ also distinctly more whitish; abdomen with the reddish or yellowish red less extensive in both sexes, the reddish on sides less conspicuous and reddish hind margins in ♂♂ almost absent; head markedly broad and the eyes markedly large, especially in ♂♂, with the interocular space in ♀♀ broader and quite $2\frac{1}{2}$ times as broad as combined length of antennal joints 1 and 2, the eyes subcontiguous or almost touching in front of tubercle in ♂♂, with the face relatively barer; wings with the first posterior cell even more attenuately acute apically and its apical stalk shorter or even very short, the cell being sometimes almost sessile; front tarsal joints in ♀♀ not markedly thickened; hypopygium of ♂ (text-fig. 27) with the neck region of basal parts dilated and prominently produced, with a downwardly directed spine on apical aspect of inner lobe (at base of apical joints), without a complicated ventral aedeagal process

♂ ♀ *sessilis* Bezz. (p. 166).

17. (16) Pubescence on body predominantly or entirely yellowish, sericeous to golden yellowish, that below only paler yellowish and, if more whitish, that above at least is distinctly yellowish and that towards apex of

abdomen in known ♂♂ less whitish; abdomen with the pale yellowish red distinctly more extensive in both sexes, the reddish on sides of abdomen in both sexes very extensive and conspicuous, sometimes very broad even in ♀♀ and the red hind margins of segments in ♂♂ usually broad and even pleurae in both sexes with more reddish; head not conspicuously broad, and the eyes, if large, not broadening the head transversely, with the interocular space in ♀♀ relative to antennal joints 1 and 2 much narrower and the space sometimes remarkably narrow, less than 2½ times combined in length of joints 1 and 2, with the eyes in known ♂♂ even more contiguous or in subcontact in front of tubercle, with the face more densely haired; wings with the first posterior cell more rapidly acute apically, its apical stalk slightly or distinctly longer; front tarsal joints in ♀♀ distinctly and markedly thickened; hypopygium of known ♂♂ with the lower margin of neck region of basal parts not produced, and without a spine or apical aspect of inner margin or lobe and with different aedeagal structures . . . . . 18.

18. (19) Head with the eyes in both sexes moderately large, with the face distinctly longer, quite as long or longer than antennal joints 1 and 2 combined, with antennal joint 3 less broadened near base and less markedly slender in apical part and with the basal terminal element inconspicuous, with the interocular space in ♀♀ very much broader, a little more than 2 times as broad as combined length of antennal joints 1 and 2, with the frons in ♀♀ distinctly very much broader and normal, with the proboscis not visibly strigilose below; red on body, though extensively developed, less extensive on abdomen, the greater part of abdomen above in both sexes with much black and proboscis reddish below; pubescence on the whole deeper yellowish to golden and that on body below only paler yellowish, not whitish; wings with the discal cross vein only a little, or sometimes scarcely, beyond middle of discoidal cell and with the veins slightly paler yellowish or yellowish brown; hypopygium of ♂ (text-fig. 28) with a very complex ventral aedeagal process . . . . . ♂ ♀ *mundus* Lw. (p. 169).

19. (18) Head with the eyes remarkably large in ♀ at least, with the face much shorter, distinctly shorter than combined length of antennal joints 1 and 2, less spout-like prominent, with antennal joint 3 remarkably broad near base and then very rapidly narrowed to apex, the apical part very slender and with the basal element of terminal elements conical and more conspicuous, with the interocular space on vertex in ♀ though nearly 3 times as broad as ocellar tubercle, remarkably narrow and only about subequal in length to combined length of antennal joints 1 and 2, with the frons thus almost abnormally narrow, with the proboscis distinctly and visibly strigilose below; red on abdomen even in ♀ very extensively developed, the disc predominantly reddish yellow and the black reduced to a central row of triangular spots and the proboscis entirely black; pubescence pale yellowish above, becoming gleaming golden yellowish on abdomen, that on body below distinctly much paler and more chalky whitish; wings with the discal cross vein very much beyond middle, at apical third, of discoidal cell and the veins slightly darker and more brownish . . . . . ♀ *atronotatus* n. sp. (p. 171).

20. (13) Wings with the first posterior cell distinctly less angularly acute apically, never sharply angularly and attenuately acute apically, always provided with a normally long stalk, this stalk being usually subequal or longer in length to rest of vein separating first posterior and second submarginal cells, with the vein between first and second posterior cells always tending to be slightly sinuous or bent up at its end where it joins the part of third longitudinal vein (M_1+R_5) which separates off the second submarginal cell and with this latter vein always bent, or pulled, basalwards where vein between first and second posterior cells joins it . . . 21.

21. (43) Abdomen above entirely black, and if hind margins tend to be reddish they are narrowly so and only on last few segments, with the rows of transverse bristles across hind margins of tegrites predominantly or entirely very dark yellowish brown, brownish to black, or at least with much darker bristles or numerous dark elements on some of the tergites laterally or towards the apex . . . . . 22.

22. (23) Legs with the femora in both sexes predominantly or extensively blackened; pubescence on body above comparatively very short and dense, that on thorax, especially in ♂♂, with a shorn-off appearance, with the black bristly elements more densely and conspicuously present on post-alar calli, on scutellum, and especially across hind margins of segments where they are very conspicuous and dense, with these black bristles sometimes flanked on the basal side by reddish brown to orange brownish hairs, especially in ♀♀; eyes in ♂♂ contiguous or in contact above for some distance at least subequal to ocellar tubercle; proboscis markedly long, about 5–8 mm. long; hypopygium of ♂ (text-fig. 29) with the ventral aedeagal process composed of 2 pointed projecting plates . . . . . ♂ ♀ *impurus* Lw. (p. 173).

23. (22) Legs with the femora entirely or predominantly yellowish, and if darkened then only so at extreme bases; pubescence on body above distinctly much longer, that on thorax above even in ♂♂ longer, more bushy or shaggy and without a closely cropped off appearance, with the black bristly elements or bristles across hind margins of abdomen less dense, less conspicuous, usually less numerous, and sometimes represented by only a few laterally or ventro-laterally near apex and without any deep brownish or reddish brown hair flanking basal side of dark transverse bristles; eyes in ♂♂ separated above even if only narrowly; proboscis shorter and usually much shorter than 5 mm.; hypopygium of ♂♂ without a ventral aedeagal process, and if with a process this is differently shaped. 24.

24. (42) Pubescence on the whole apparently shorter, not markedly shaggy on occiput and thorax, that on occiput and front part of thorax, when viewed from side, not so markedly gleaming sericeous or silky whitish and not contrasting collar-like with the more yellowish or whitish hair on rest of thorax above, and if whitish second longitudinal vein is rapidly bent up at end, with the bristly hairs or bristles on face and genae, on sides of thorax in front of wing-bases, on post-alar calli, and across hind margin of scutellum pale or coloured pale yellowish or whitish like rest of pubescence on these sites; wings with the second longitudinal vein distinctly or normally bent upwards at its end, i.e. almost at right angles

or very rapidly; face and head below rarely black, and if darkened the wings are usually tinged mauvish brown or distinctly yellowish, and second longitudinal vein is more rapidly bent up at end . . . 25.

25. (30) Wings distinctly and sometimes deeply tinged reddish or mauvish brown, deeper and darker brownish or reddish brown towards costal and basal parts, especially in ♂♂; face, head below, and basal parts of femora inclined to be darker and sometimes blackish; pubescence on body above usually deeper yellowish, more brownish yellow, and if paler and more creamy or creamy yellowish wings are at least tinged reddish or mauvish brown, that on body below, though paler than above, duller and not contrasting much with that above, that towards apex of abdomen in both sexes also more yellowish, and if inclining to be distinctly whitish wings are tinged reddish mauve; antennae with joint 1 longer, at least 4, or even more, times as long as 2 and sometimes darkened along upper part; eyes in ♂♂ separated above by a space about as broad as front part of ocellar tubercle or tubercle itself . . . . . 26.

26. (29) Pubescence on body above distinctly deeper yellowish to deep golden yellowish, with a distinct brownish or reddish brown tint in certain lights, that on body below only paler yellowish not contrasting much with that above, that towards apex of abdomen in both sexes more yellowish; wings distinctly tinged deeper reddish or mauvish brown; antennal joint 1 slightly longer, usually slightly more than 4 times as long as 2; interocular space in ♂♂ broader, about as broad as ocellar tubercle or broad front part of tubercle . . . . . 27.

27. (28) Face and head below much darker, almost black or black; femora, especially in ♂♂, distinctly darkened or blackened basally to about middle and with the coxae and trochanters also darker; pubescence tending to be darker and more brownish yellow, that on antennae and face also darker and more reddish brown, with the dark or black transverse bristles across abdomen darker and more conspicuous; antennae relatively shorter and joint 3 slightly more attenuated apically and less rod-like; wings in ♀♀ apparently less tinged and less so than in ♂♂

♂ ♀ *tinctipennis* n. sp. var. *thornei* n. (p. 178).

28. (27) Face and head below paler and more yellowish or pallid; femora less extensively darkened at bases in ♂♂, almost entirely yellowish, the coxae and trochanters also paler and more obscurely reddish yellow; pubescence on the whole tending to be paler and that on antennae and face paler and more pale yellowish, with less dark or less conspicuously dark transverse bristles across abdomen; antennae apparently longer and with joint 3 more distinctly rod-like; wings in both sexes more equally and uniformly tinged reddish or mauvish brown . ♂ ♀ *tinctipennis* n. sp. (p. 176).

29. (26) Pubescence on body above paler and more creamy yellowish and even paler in ♂♂, that on body below distinctly very much paler and more distinctly whitish, contrasting with that above, that towards apical part of abdomen distinctly more whitish and in ♂♂ almost white; wings slightly less deeply reddish mauve; antennal joint 1 apparently slightly shorter and only about 4 times as long as 2; interocular space in ♂♂ narrower, about as broad as front ocellus or narrow front part of tubercle.

♂ ♀ *marginellus* Bezz. (p. 180).

30. (25) Wings not distinctly tinged reddish mauvish or brownish mauvish, usually greyish hyaline or subopaquely greyish hyaline and when with yellowish brown, the tinge is only evident towards base; face, head below, coxae, and trochanters more yellowish, yellowish red to yellowish brown and if coxae and bases of femora are darkened the wings are not tinged; pubescence on body above much paler yellowish, creamy yellowish to whitish and even more so in certain lights, that on head in front also paler and sometimes more whitish, that on pleurae and even abdomen below paler, more distinctly whitish and contrasting with that above, that towards apex of abdomen also more whitish, especially in ♂♂; antennae with joint 1 tending to be shorter, scarcely, or less than, 4 times as long as 2, and sometimes also tending to be entirely dark above; eyes in ♂♂ subcontiguous or contiguous above or separated only narrowly by breadth of front ocellus . . . . . 31.

31. (34) Body with the abdominal tergites 2–7 or at least 5–7 narrowly margined with reddish, tergite 7 being more broadly or even entirely reddish, with the sternites also distinctly margined with reddish, with the face and head below yellowish or pallid, and if dark in some ♂♂ the wings are subopaquely greyish hyaline or greyish hyaline, with the legs, including the coxae, entirely yellowish and with a tendency for a longitudinal reddish infusion on pleurae; wings vitreous hyaline or distinctly more greyish or subopaquely greyish hyaline, having a distinct subopacity in some instances; pubescence on the whole paler, distinctly more sericeous whitish, especially on front part of thorax, that discally may be faintly yellowish sericeous, that on abdomen also paler even if yellowish, that on body below and basal part of venter on each side whiter and more frosty white, contrasting with the more pale sericeous whitish or yellowish pubescence above . . . . . 32.

32. (33) Abdomen with the narrow hind margins of tergites 2–7 or at least 4–7 more distinctly and more conspicuously reddish, the last tergite in ♀♀ sometimes entirely reddish, and the margins in ♂♂ also broader reddish and reddish on pleurae more conspicuous; wings distinctly clearer, with a much fainter whitish subopacity in certain lights, with fewer hairs above on middle vein at extreme base; pubescence with the transverse bristly elements across hind margins of tergites tending to be less dark, less conspicuous, more golden brownish, the darkest ones more evident towards apical part of abdomen; eyes in ♂♂ narrowly separated by width of front ocellus; hypopygium of ♂ with the aedeagus slightly projecting apically beyond apices of basal parts, and with the beaked apical joints slightly less hairy above and their apices less bent downwards . . . . . ♂ ♀ *imitator* n. sp. (p. 185).

33. (32) Abdomen with the narrow hind margins of only tergites 5–7 very narrowly reddish, the last tergite in ♀♀ less reddish, and with the reddish hind margins in ♂♂ even more obscure, and with the reddish on pleurae also more obscure; wings distinctly and more typically subopaquely greyish, showing a marked subopacity to whitish tint and with the hairs above on middle vein at base denser and more conspicuous; pubescence appearing paler and with the transverse bristly elements on abdomen above distinctly darker, denser, and more conspicuous even from tergite 2,

appearing distinctly more dark brownish, even darker towards apical part and there more evidently pale-tipped; eyes in ♂♂ contiguous above in front of tubercle and narrower there than front ocellus; hypopygium of ♂ (text-fig. 34) with the aedeagus shorter and not reaching apices of basal parts and with the beaked apical joints provided with longer and denser hairs above, their apices slightly more bent downwards

♂ ♀ *fucatus* Bezz. (p. 182).
(ex labelled specimens.)

34. (31) Body with the abdomen above entirely black in both sexes and the venter also black or with only very narrow and obscure yellowish margins, with the face and head below darker or black, and if yellowish abdomen above is entirely black, with the coxae usually much darker or black and even extreme bases of femora also darkened, especially in ♂♂, with the pleurae black, but if with reddish the red is more sutural; wings more distinctly tinged yellowish basally and costally, especially in ♂♂, or even feebly reddish mauvish, a distinct subopaquely whitish tint not evident, and if with a slight subopacity abdomen is entirely black above; pubescence distinctly more creamy yellowish to golden yellowish, that on body below, though paler than above, not so vividly whitish and so contrasting with that above, and, if contrastingly white, abdomen above is entirely black . . . . . { 35 ♂♂ / 41 ♀♀

35. (38) Eyes in ♂♂ narrowly separated by width of broad front ocellus or anterior part of ocellar tubercle; head below not entirely black, but yellowish anteriorly; pubescence with the pale or whitish hair on head below and on pleural parts less extensive, that on pectus and coxae less white and more straw-coloured than across pleurae, that on thorax above apparently slightly longer, that on face and first antennal joints less deeply yellowish and with the transverse black or dark bristly elements on abdomen above more distinctly developed, more conspicuous, and present at least on sides of tergites 2 to apex; wings with the yellowish tinge towards base less evident, or wings may have a slight reddish mauvish tinge and with the discal cross vein much beyond middle of discoidal cell . . . . . 36.

36. (37) Pubescence on body above distinctly deeper and more golden yellowish, that on abdomen above even more golden, that on venter also more yellowish; coxae, trochanters, and bases of femora, of which at least basal halves of front ones, black, and hind femora with about 7–8 spines below; wings with the veins darker brownish . ♂ *turneri* n. sp. (p. 179).

37. (36) Pubescence on body above distinctly much paler, more creamy yellowish, that on abdomen above much paler and even becoming more whitish towards apex, that on venter more whitish; coxae more reddish, and only the extreme bases of femora darkened, and hind femora with only about 6 spines below; wings with the veins paler reddish brown

♂ *marginellus* Bezz. (p. 180).

38. (35) Eyes in ♂♂ contiguous or subcontiguous in front of ocellar tubercle, the space very slightly narrower than front ocellus and very much narrower than front part of tubercle; head below entirely black; pubescence with the hair on head below, on pleurae, coxae, and on each side of venter

basally extensively frosty white, that on thorax above slightly shorter and less shaggy, that on face and first antennal joints more deeply and more golden yellowish and with the transverse dark or blackish bristly elements on abdomen above fewer, inconspicuous, and usually only represented apically; wings with the yellowish tinge more pronounced and with the discal cross vein at about the middle of the discoidal cell 39.

39. (40) Claws distinctly more rapidly bent down, almost at right angles, near apex, the pulvilli reaching bent down apices of claws; head with the face distinctly shorter, subequal in length to combined length of antennal joints 1 and 2 and the face also darker; pubescence predominantly golden to deep golden yellowish above, that on abdomen golden yellowish and scarcely paler towards apex, with the transverse bristles on abdomen with more numerous dark ones on sides and towards apex, the pubescence on thorax in front more sericeous yellowish; hypopygium (text-fig. 37) . . . . . ♂ *icteroglaenus* n. sp. (p. 190).

40. (39) Claws distinctly more gradually and arcuately curved, the pulvilli not reaching bent-down apices of claws; head with the face distinctly longer and more prominent, longer than combined length of antennal joints 1 and 2, and the face also more extensively paler; pubescence on the whole paler, that on front part of thorax more sericeous whitish, and that on abdomen, especially towards apical part, distinctly very much paler and almost whitish, with the transverse bristles across abdomen with fewer or even without any darkish ones on sides and apically; hypopygium (text-fig. 36) . . . . . ♂ *pseudopsis* n. sp. (p. 188).

41. (41) Wings feebly tinged reddish mauve and with a slight subopacity; pubescence creamy yellowish above, more whitish below, that towards apical part of abdomen slightly paler than on rest of body above, with the transverse bristly elements across hind margins of tergites dark reddish brown to dark brownish; face and head below darkish yellowish brown and brownish, and the coxae and legs yellowish

♀ *marginellus* Bezz. (p. 180).

42. (24) Pubescence on the whole more shaggy anteriorly on thorax and on occiput, especially in ♂♂, markedly and more conspicuously gleaming silvery or silky whitish, contrasting more collar-like with the more yellowish pubescence on rest of thorax, with the bristles on face and genae, on sides of thorax in front of wings, on post-alar calli and across hind margin of scutellum darker, more brownish, or blackish brown, their bases even distinctly darker; wings with the second longitudinal vein only gradually bending upwards at its end, thus distinctly less sinuous at its end; face and head below entirely black

♂ ♀ *meltoni* n. sp. (p. 191).

43. (21) Abdomen above either with distinctly more red on sides or across hind margins or without any red, with the rows of transverse bristles across hind margins, where present, entirely pale, whitish, yellowish, or golden like the rest of pubescence on abdomen, no very dark or blackish bristly elements being present . . . . . 44.

44. (77) Abdomen above entirely black, not distinctly conspicuously or extensively red or reddish on sides and without reddish hind margins to tergites in

both sexes, and if red is present above it is obscure or confined to apical parts . . . . . { 45 ♂♂ / 67 ♀♀

45. (62) Eyes in ♂♂ contiguous, subcontiguous, just touching or almost in contact above in front of ocellar tubercle, and if very slightly separated not broader than width of front ocellus . . . . . 46.

46. (55) Femora distinctly blackened at bases, to near middle or beyond middle and with even the greater part of hind ones sometimes blackened; face, head below, and entire antennae black or darkish, and if antennal joint 1 is reddish bases of femora are darkened, with the scutellum also less extensively reddish, the greater part of base tending to be dark or blackish . . . . . 47.

47. (50) Femora more extensively blackened to beyond middle, and even hind ones are blackened, only the apical parts of femora yellowish; claws distinctly more rapidly bent down, almost at right angles, at apex, and the pulvilli more developed and reaching the bent apices of claws; antennal joint 3 more spindle-shaped; eyes tending to be in actual contact; hypopygium with the apical joints shorter and broader, not slender and elongate, more leaf-shaped from a dorsal view and with a ventral aedeagal process below aedeagus . . . . . 48.

48. (49) Pubescence distinctly much shorter, not shaggy on thorax above but with a cropped-off appearance, very pale sericeous yellowish above, that on body below more whitish, that on disc of thorax and scutellum deeper sericeous yellowish; scutellum with the hinder half of disc reddish, and sides of abdomen with red; head with antennal joint 1 much shorter and less than 2 times as long as joint 2, with joint 3 slightly broader in basal half and more rapidly attenuated apically, spindle-shaped, with the proboscis more distinctly finely strigilose below; wings slightly broader especially towards base, with the basal comb well developed and with the first posterior cell tending to be more acute apically; hind femora with about 8 spines below; hypopygium (text-fig. 48) with the ventral aedeagal process in form of an apically projecting lobe below aedeagus; larger form, about 8 mm. long and with a wing-length of about 8 mm.

♂ *muscoides* n. sp. (p. 217)

(where red is obscure on abdomen.)

49. (48) Pubescence distinctly longer, distinctly longer and more shaggy on thorax above and on abdomen, straw-coloured yellowish and with slight sericeous gleams, that on body below, though paler than above, not so contrasting whitish, that on occiput distinctly more whitish; scutellum predominantly black and with a scarcely perceptible rufous tint across hind border and sides of abdomen entirely black; head with antennal joint 1 longer and at least 2 times as long as joint 2, with joint 3 slightly less broadened basally and less rapidly attenuated apically, the apical part thus less slender, with the proboscis not visibly finely strigilose below; wings slightly narrower, with the basal comb very poorly developed and with the first posterior cell normal apically; hind femora with only about 3 or 4 more slender spines below in apical half; hypopygium (text-fig. 39) with the ventral aedeagal process in form of a broad, flattened, vertical, lamellar plate on each side, converging apically;

smaller species, about 6 mm. long and with a wing-length of about 6½ mm. . . . . ♂ *kaokoënsis* n. sp. (p. 193).

50. (47) Femora less extensively blackened and only at bases or in basal halves of front and middle ones, the hind ones being entirely yellowish or only obscurely darkened at extreme bases; claws distinctly less rapidly curved down apically, more gradually curving down to apex and apparently more slender, with the pulvilli also more slender, and though reaching middle of claws and even extending slightly beyond middle, they are actually shorter and do not touch the apices of claws; antennal joint 3 more rod-like; eyes above more contiguous or subcontiguous or touching for a shorter distance or narrowly separated by front ocellus; hypopygium with the apical joints distinctly elongate, narrow, and slender and without a ventral aedeagal process below aedeagus 51.

51. (52) Head with the face distinctly longer and more conically prominent, longer than combined length of antennal joints 1 and 2, the face also more pallid, with the proboscis more distinctly yellowish below; pubescence with that on face on the whole denser, that on disc of thorax and on each side above wings and on scutellum scarcely with sericeous yellowish gleams; slightly larger and more bulky form, about 8½ mm. long and with a wing-length of about 8 mm.; hypopygium (text-fig. 36) ♂ *pseudopsis* n. sp. (p. 188).

52. (51) Head with the face distinctly shorter and less prominent, shorter or only subequal in length to combined antennal joints 1 and 2, the face entirely black, with the proboscis also entirely black or with more obscure reddish basally below; pubescence with that on face shorter and sparser, that on disc of thorax and on each side above wings and on scutellum with slightly more distinct sericeous yellowish gleams in certain lights; slightly smaller forms, about 5½–6½ mm. long and with a wing-length of about 5½–7½ mm. . . . . 53.

53. (54) Wings more distinctly tinged yellowish in costal and basal parts, with the basal comb more strongly developed, with the second longitudinal vein distinctly more gradually and less rapidly bent upwards at its end, with the discal cross vein distinctly beyond middle of discoidal cell; head with antennal joint 1 predominantly reddish, only darkened above, with joint 3 more broadened basally, less rod-like, with the proboscis longer, about 3½ mm. long and tending to be obscurely reddish below at base; pubescence slightly shorter at least on thorax discally, very pale yellowish sericeous on thorax, more whitish in front, that on scutellum and abdomen above distinctly deeper sericeous yellowish to pale golden, the bristly elements more gleaming golden and on sides even more golden, that on body below whitish; legs with the femora only darkened or blackened at extreme bases; larger form about 6½ mm. long and with a wing-length of about 7½ mm.; hypopygium (text-fig. 40) ♂ *anomalus* n. sp. (p. 196).

54. (53) Wings more subopaquely whitish in basal and costal parts, with the basal comb very poorly developed, with the second longitudinal vein distinctly more rapidly, almost at right angles, bent up at its end, with the discal cross vein at about, or even just before, middle of discoidal cell; head with antennal joint 1 entirely black, with joint 3 distinctly

more rod-like, only gradually thickened basally, with the proboscis shorter, only about 2½ mm. long and entirely black; pubescence slightly more shaggy and longer, predominantly straw-coloured yellowish above, appearing more sericeous whitish on thorax in front, that on abdomen above less yellowish golden and the bristly elements not deeply gleaming golden, that on body below also whitish but less contrasting with that above; legs with the front and middle femora blackened to near, or about, the middle and even hind ones darkened at extreme bases; smaller form, about 5½ mm. long and with a wing-length of about 5½ mm.
♂ *extraneus* n. sp. (p. 195).

55. (46) Femora entirely yellow; face, head below, and antennal joint 1, and to a certain extent 2, and in some cases even 3, yellowish or yellowish red, with the proboscis below usually also more extensively reddish and with the scutellum more extensively and almost predominantly reddish, the base or basal part more narrowly black . . . . . 56.

56. (61) Claws distinctly more gradually curving down to apices, narrower basally when viewed from side and slightly longer, with the pulvilli on the whole less developed, more slender, and scarcely reaching middle of claws; hind femora with more than 6 spines below; head with the face distinctly longer, distinctly and sometimes very much longer than combined length of antennal joints 1 and 2, with antennal joint 3 and to a certain extent 2 black, with the proboscis below basally distinctly more extensively reddish; wings with a more distinctly yellowish tinge in costal and basal parts, including first and second basal cells, and if not distinctly tinged the veins at least are darker brownish or reddish brown; pubescence becoming distinctly paler and more whitish towards apex of abdomen above and venter, that on thorax in front from in front tending to be more gleaming sericeous whitish in certain lights than sericeous yellowish, and that on body below also appearing more whitish in certain lights; hypopygium (text-figs. 35, 41, and 43) with the beaked apical joints distinctly much longer and relatively more slender . . 57.

57. (60) Smaller forms, about 7–9 mm. long and with a wing-length of about 8–9 mm., less bulky in appearance; legs with the claws slightly shorter and distinctly more curved and with the pulvilli tending to be longer and at least reaching middle of claws, with only about 9 spines on hind femora below and without any spines on front ones below; head with the proboscis shorter, less than 5 mm. long, with antennal joint 3 relatively shorter, less rapidly attenuated apically; pubescence distinctly longer and not so obviously cropped off in appearance on thorax, that on first antennal joints and face distinctly longer and less sericeous whitish, that on abdomen above distinctly more shaggy and relatively longer and on the whole sparser, that on body above, though also appearing yellowish, less creamy yellowish, and that on sides of abdomen basally less distinctly yellowish, and that in front of wings also less deeply yellowish in certain lights; wings with the veins more dark brownish, and with the second longitudinal vein more rapidly bent up at its end, and with the basal comb slightly less developed; abdominal tergite 1 entirely black, like the other tergites . . . . . 58.

58. (59) Head with the face much longer, more conically prominent, with antennal

joint 1 distinctly longer and quite 3 times as long as joint 2, with joint 3 thicker and more spindle-shaped, broadest just before middle; wings broader, more distinctly and more extensively tinged yellowish in basal two-thirds, with the discal cross vein at about the middle of discoidal cell, the discoidal cell itself more truncate apically; pubescence paler and more sericeous whitish above in certain lights, that on body below distinctly more contrasting in whiteness with that above, there being no yellowish or darkish bristly elements on coxae, that on face and genae longer, denser, and gleaming deeper ochreous to orange golden; larger form, about 9 mm. long, with a wing-length of about 9 mm.; hypopygium (text-fig. 35) . . . . . ♂ *aurimystax* n. sp. (p. 187).

59. (58) Head with the face very much shorter, not tending to be conically produced, with antennal joint 1 shorter, only a very little longer than 2 times as long as 2, with joint 3 distinctly more slender, gradually thickened basally; wings narrower, vitreous hyaline and with only the costal cell, first basal cell, base and alula subopaquely very pale yellowish, with the discal cross vein distinctly beyond middle of discoidal cell and the latter less truncate apically; pubescence distinctly yellower and more sericeous yellowish above, that on body below with only whitish hair on head below and across middle parts of pleurae, less contrastingly whitish, that on coxae more straw-coloured yellowish and with intermixed darkish bristly elements, that on face and genae shorter, sparser, much paler and more gleaming pale sericeous yellowish; smaller form, about 7 mm. long and with a wing-length of about 8 mm.; hypopygium (text-fig. 41) . . . . . ♂ *calviniensis* n. sp. (p. 198).

60. (57) Larger and more bulky species, about 10–11 mm. long, with a wing-length of about 10–11 mm.; legs with the claws slightly longer and even less curved and with the pulvilli rather shorter, not, or scarcely, reaching middle of claws, with about 9–14 spines on hind femora below and also with 1–3 spines on front ones below; head with the proboscis longer, about 5–5½ mm. long, with antennal joint 3 relatively longer, distinctly more rapidly attenuated apically; pubescence distinctly shorter, that on thorax above denser and with a short cropped-off appearance, that on antennal joint 1 and on face shorter and more sericeous whitish, that on abdomen above denser and shorter, creamy yellowish on body above, that below more whitish, that on sides of abdomen basally more ochreous yellowish in certain lights, and that in front of wings also deeper yellowish; wings with the veins more reddish brown, and with the second longitudinal vein rather less rapidly bent up at its end, and with the basal comb more strongly developed; abdominal tergite 1 sometimes distinctly reddened or reddish on sides; hypopygium (text-fig. 43) . . . . . ♂ *karooënsis* n. sp. (p. 201).
(Syn. =*ruficeps* Bezz. nec Macq.)

61. (56) Claws distinctly and obviously more rapidly bent down, almost at right angles, apically, distinctly broader at bases in profile, with the pulvilli on the whole more developed, slightly broader, and at least reaching or even extending beyond middle of claws; hind femora with only about 4–6 spines below; head with the face distinctly much shorter and scarcely as long as combined length of antennal joints 1 and 2, with antennal

joints 2 and 3 yellowish like joint 1, with the proboscis entirely black or less extensively yellowish below basally; wings glassy hyaline, with only the costal cell and base subopaquely almost whitish, with the veins paler and more yellowish or pale yellowish brown; pubescence more uniformly sericeous yellowish above, that towards apex of abdomen not, or scarcely, paler, that on thorax in front more gleaming sericeous yellowish, that on body below becoming almost imperceptibly paler and more whitish than on body above and upper parts of pleurae; hypopygium (text-fig. 42) with the beaked apical joints distinctly much shorter and relatively broader . . ♂ *xanthocerus* Bezz. (p. 200).

62. (45) Eyes in ♂♂ distinctly more broadly separated by width of broad front part of ocellar tubercle or by the tubercle itself, thus much broader than width of front ocellus . . . . . 63.

63. (66) Wings more hyaline, only tinged very pale yellowish or more subopaquely whitish yellowish in costal cell and base or in basal two-thirds, not brownish or reddish mauve, and rest of wing more hyaline, the veins also less dark, with the discal cross vein only a little beyond middle of discoidal cell; legs with the femora entirely yellowish, with the claws more distinctly and rapidly curved down, almost at right angles, nearer apex, and the pulvilli reaching bent-down apices of claws; head with the face shorter, not convexly prominent and scarcely longer than combined length of antennal joints 1 and 2, with antennal joint 1 shorter, scarcely 4, or even shorter than 3, times as long as 2, predominantly reddish, with the proboscis more yellowish at base below; pubescence on the whole very much paler above, with more sericeous whitish or very pale sericeous yellowish gleams in certain lights, that towards apical part of abdomen, distinctly more whitish, that on body below also paler and more whitish, that on first antennal joints, face, occiput, and thorax in front on the whole shorter and less bushy or shaggy, with the transverse bristly elements on abdomen above very pale like rest of pubescence; hypopygium (text-figs. 44 and 45) without any ventral process below aedeagus 64.

64. (65) Wings more elongate, more distinctly and more deeply tinged yellowish or pale yellowish brown in costal and basal two-thirds, with the basal comb more strongly developed; pubescence with more sericeous yellowish gleams on thorax, that on abdomen on each side basally with a more yellowish tint, that on pleurae appearing distinctly paler than that above, with distinct macrochaetal bristles in front of wings; head with antennal joint 1 relatively shorter and not quite 3 times as long as 2, also slightly stouter, with joint 3 stouter and relatively shorter, with the proboscis more extensively yellowish below; hypopygium (text-fig. 45) with the beaked apical joints slightly more bent downwards apically and the basal strut broader; larger form, about 6–7 mm., with a wing-length of about 7½–8 mm. . . . ♂ *simulans* n. sp. (p. 208).

65. (64) Wings comparatively shorter, almost entirely glassy hyaline, only the costal cell, first basal cell, and base very faintly tinged subopaquely whitish yellowish, and with the basal comb feeble; pubescence slightly denser, on entire body distinctly more gleaming sericeous whitish and that on body below only duller whitish than above, not very much paler

and without any visible macrochaetal bristles in front of wings; head with antennal joint 1 slightly more slender and relatively longer, tending to be $3\frac{1}{2}$, or even a little more, times as long as 2, with joint 3 more slender and apparently longer and more rod-like, with the proboscis less distinctly reddish below basally; hypopygium (text-fig. 44) with the beaked apical joints slightly less rapidly bent downwards apically and with the basal strut smaller and narrower . ♂ *aemulus* n. sp. (p. 204).

66. (63) Wings distinctly and sometimes quite darkly tinged brownish or brownish mauve to even reddish mauve, the costal and basal part distinctly darker and more brownish, with the veins darker and with the discal cross vein very much beyond middle of discoidal cell; legs with the bases or basal halves of front and middle femora darkened or blackened, with the claws more gradually and arcuately curved, and the pulvilli less developed, shortish or just falling short of middle of claws; head with the face, in profile, longer and more convexly rounded, distinctly longer than combined length of antennal joints 1 and 2, with antennal joint 1 almost black, only brownish below, longer and quite 4, or even a little more, times as long as 2, with the proboscis entirely black; pubescence distinctly more yellowish, deeper sericeous yellowish, golden yellowish to even slightly brownish golden above in certain lights, that on abdomen also distinctly more pale to deep golden, that on body below more straw-coloured yellowish to even yellowish, that on antennae, face, genae, occiput, and thorax in front more shaggy or bushy, with the transverse bristly elements across abdomen above also deeper yellowish, sometimes tending to be more brownish golden; hypopygium (text-fig. 30, *a* and *b*) with a distinct and prominent ventral aedeagal process below aedeagus in form of a vertical, flattened, shell-like plate on each side, which converges and coalesces apically . . ♂ *tinctipennis* n. sp. (p. 176).

67. (74) Claws distinctly more rapidly curved down, almost at right angles and nearer apex, with the pulvilli slightly more developed and reaching bent down apices of claws; head with the face distinctly shorter or at least subequal in length to combined length of antennal joints 1 and 2; wings glassy hyaline, with the costal cell, basal half of first basal cell, and base very pale, only subopaquely whitish and yellowish whitish, with the basal comb very poorly developed and sometimes almost vestigial; pubescence predominantly very pale, straw-coloured whitish, almost sericeous whitish to pale sericeous yellowish above, and whitish or almost white below, with the macrochaetal elements in front of wings wanting or not strongly developed and the transverse bristles across abdomen on the whole not very much differentiated; smaller forms, about 5–$6\frac{1}{2}$ mm. long and with a wing-length of about 6–7 mm. . . . . 68.

68. (73) Head with antennal joint 3, and to a certain extent 2, black, with 3 more rod-like or, if thickened, not tending to be spindle-shaped and not appearing humped above just before middle, with the face much longer or at least relatively longer, with the proboscis shorter, about 2–$2\frac{1}{3}$ mm. long; pubescence more whitish or paler, gleaming sericeous whitish to very pale sericeous yellowish above, that towards apex of abdomen also paler and more whitish, that on body below on the whole more whitish, the pubescence above longer and more shaggy; abdomen with the hind

margins of sternites scarcely, or only very narrowly, yellowish, and the hind margins of last few tergites not yellowish, and if tending to be yellowish pubescence is very pale and antennal joint 3 is black; wings with the second longitudinal vein tending to be more rapidly bent up at its end . . . . . 69.

69. (72) Head with antennal joint 1 longer, about or quite 3½–4 times as long as 2, more slender, with joint 3 distinctly more slender and rod-like, tapering apically, with the proboscis slightly less stout and more distinctly reddish below at base, with the face and head below more pallid or yellowish; pubescence on face, first antennal joints, occiput and thorax in front distinctly longer and more bushy and on face also denser, that above more gleaming sericeous whitish becoming more sericeous whitish towards apex of abdomen; abdomen with the hind margins of the tergites black, like rest of abdomen above, but last tergite may be yellowish apically 70.

70. (71) Pubescence on sides of thorax in front of wings and on upper part of mesopleuron and that on sides of abdomen straw-coloured yellowish and with sericeous gleams like rest of pubescence, that on sides of frons anteriorly, on first antennal joints and face above very pale sericeous yellowish; pleurae predominantly dark; wings with the veins paler and more yellowish brown; thorax slightly more convex, appearing almost subglobular . . . . . ♀ *aemulus* n. sp. (p. 204).

71. (70) Pubescence on sides of thorax on upper part of mesopleuron in front of wings and that on sides of abdomen with a more distinct and deeper yellowish tint, that on antennae, front part of frons and on face above also deeper and even more pale golden; pleurae tending to have more reddish above coxae; wings with the veins darker and more dark brown; thorax less convexly prominent discally . . ♀ *montivagus* n. sp. (p. 206).

72. (69) Head with antennal joint 1 distinctly shorter and only about 2½ times as long as 2, relatively stouter, with joint 3 distinctly very much stouter, broadest near base and then only gradually narrowed apically, with the proboscis also relatively stouter and entirely black, with the face and head below darker or at least more obscurely yellowish; pubescence on head, occiput, and thorax in front distinctly shorter, tending to have a cropped appearance, not shaggy and bushy, and that on face sparser, that on body above gleaming more pale lemon yellowish, not paler apically on abdomen; abdomen with the hind margins of the last few tergites very narrowly pallid, and extreme sides of tergites below also distinctly pallid . . . . ♀ *damarensis* n. sp. (p. 207).

73. (68) Head with antennal joint 3 and also joint 2 yellowish or pale reddish yellow, and with joint 1 yellowish, with joint 3 not rod-like, tending to be spindle-shaped, broadest just before middle, narrowed apically and to a lesser extent basally, appearing humped above, due to the fact that lower margin is more straight, with the face distinctly and relatively much shorter, with the proboscis very much longer, 3½–4 mm.; pubescence very much shorter and with a more shorn off appearance on thorax, not shaggy, distinctly deeper yellowish and gleaming sericeous to golden yellowish above, not paler towards apex of abdomen, that on body below only slightly paler than above, not contrastingly white; abdomen with

the hind margins of sternites distinctly more broadly yellowish and the hind margins of tergites 4–7 more distinctly yellowish; wings with the second longitudinal vein tending to be more gradually bent up at its end . . . . . ♀ *xanthocerus* Bezz. (p. 200).

74. (67) Claws distinctly more gradually and more arcuately curved, with the pulvilli tending to be less developed and shorter, just reaching the middle of claws but not extending to their apices; head with the face distinctly longer, more produced and longer than combined length of antennal joints 1 and 2; wings more greyish hyaline, and with the base, first basal cell, and costal cell more distinctly yellowish or wings are distinctly and even deeply tinged reddish or brownish mauve, the base and costal parts being darker, with the basal comb more strongly developed; pubescence above predominantly deeper yellowish, deeper golden yellowish, even tinted brownish or reddish golden in certain lights, that below only paler yellowish but not sericeous or frosty whitish or contrasting much with that above, with the macrochaetal bristles in front of wings more strongly developed and more conspicuous, and the transverse bristles across abdomen stouter, more conspicuous, and sometimes slightly darker reddish golden than rest of pubescence; larger forms, about 7–11 mm. long, bulkier and with a wing-length of about 8–11 mm. . . . . 75.

75. (76) Wings greyish hyaline, with only the base, first basal cell, and costal cell subopaquely yellowish, with the veins reddish yellow or pale reddish brownish; head with the face slightly shorter, less convex, with antennal joint 1 much shorter, only about 2, or a little more, times as long as 2, with joint 3 broadened basally and tapering apically, with the proboscis longer, about 5–5½ mm. long; scutellum predominantly reddish, and sides of tergite 1 usually also reddish; pubescence distinctly shorter, that on thorax above with a shorn off appearance, that on abdomen relatively very much shorter and not shaggy, the bristly elements across hind margins of tergites denser and shorter and rest of pubescence on abdomen above shorter than bristles and sparse, pale golden to deep golden above, the transverse bristles not tending to be very dark; legs with 1–3 spines on front femora and with about 9–14 spines on hind ones below, with the claws tending to be slightly longer and less curved and the pulvilli slightly shorter; larger and more bulky species, about 10–11 mm. long and with a wing-length of about 10–11 mm.

♀ *karooënsis* n. sp. (p. 201).

76. (75) Wings distinctly and sometimes very deeply tinged reddish mauvish or brownish mauvish, the costal and basal parts being darker, with the veins darker reddish brown; head with the face longer and more characteristically convex above, with antennal joint 1 much longer, quite 4, or even a little more, times as long as 2, with 3 more rod-like, less thickened basally and slightly more curved, with the proboscis on the whole shorter, about 3½–4½ mm. long; scutellum with a broadish basal triangular black spot and the hind margin blackish and with the abdomen entirely black; pubescence longer and distinctly more shaggy, that on abdomen much longer and more shaggy or bushy, the bristly elements across abdomen, especially towards apex, very long, and rest

of pubescence, in form of erect hairs, also long and denser, also golden to very deep golden above, sometimes even brownish or reddish golden, the transverse bristles tending to be deeper reddish golden, inclining even to brownish; legs without any spines on front femora below and with about 6–12 spines on hind ones below, with the claws tending to be more curved; less bulky species, about 7–9½ mm. long and with a wing-length of about 8–10½ mm. . . ♀ *tinctipennis* n. sp. (p. 176).

77. (44) Abdomen above not entirely black, with distinct or sometimes broad red or reddish on sides or with much more distinct or broader reddish hind margins to tergites even discally or the entire abdomen may be predominantly muddy yellowish or brownish . . . . 78.

78. (115) Integument of body not reddish brown or muddy brown, and entire abdomen not muddy brown or reddish brown; wings not with a distinct whitish subopacity . . . . . 79.

79. (84) Pubescence with characteristic, shortish, almost coarse, dense, crinkly, curly or markedly woolly, matted, non-gleaming, frosty white hair on occiput, thorax in front and on sides, on pleurae and on abdomen, denser and more conspicuous on abdomen in ♂♂, with the bristly hairs and bristles on occiput, thorax and sides of thorax, on scutellum and across hind margins of abdomen in ♀♀ and to a certain extent on scutellum and across abdomen in ♂♂ conspicuously gleaming, either deep golden to reddish golden or silvery whitish and contrasting very much with the non-gleaming crinkly white pubescence; wings with a distinct, though sometimes faint, blackish or dark spot-like infuscation on apical cross veins of basal cells and sometimes also at base of vein between sub-marginal cells and across basal fork of second and third longitudinal veins . . . . . 80.

80. (81) Femora entirely yellowish in both sexes; face pallid or yellowish and antennal joint 1 paler and more distinctly yellowish; abdomen with comparatively broad reddish hind margins on tergites 2–6; wings with the veins paler . . . . . ♂ ♀ *auriferus* n. sp. (p. 210).

81. (80) Femora blackened at bases, extensively blackened or almost entirely black and even the tibiae sometimes darkened above; face darker and sometimes very dark blackish brown and the antennae entirely dark or black; abdomen with the hind margins of tergites more narrowly reddish or only those of 3–6 reddish or feebly reddish; wings with the veins darker . . . . . 82.

82. (83) Femora predominantly black, only the apices yellowish, the tibiae yellowish, the spines on legs yellowish; scutellum predominantly reddish; pubescence with the bristly elements on frons, antennae and face brownish golden, those on disc of thorax and scutellum gleaming deep golden or reddish golden and those transversely across tergites pale golden, the bristly hairs on coxae pale golden; wings with the black spots very conspicuous; antennal joint 1 slightly longer, about, or a little more than, 3 times as long as 2 . . ♀ *auriferus* var. *nigripes* n. (p. 211).

83. (82) Femora with the front and middle ones blackened only in basal halves, the hind ones entirely blackened, with the tibiae and tarsi also much darkened or blackened above, the hind tarsi almost entirely dark, the spines on legs whitish; scutellum predominantly black or dark, only

reddish across hind margin; pubescence with the bristly elements on occiput, frons, antennae and face gleaming white, those on disc of thorax and abdomen gleaming white, the bristly hairs on coxae sericeous whitish; wings with the dark spots tending to be less distinct; antennal joint 1 slightly shorter, about 3 times as long as 2

♀ *auriferus* var. *melanus* n. (p. 212).

84. (79) Pubescence without such characteristic, dense, matted, crinkly, non-gleaming hairs on body above, whitish hair if present not crinkly or woolly but more gleaming sericeous, with the bristly hairs and bristles on body not gleaming golden or almost silvery whitish and not vividly contrasting with the rest of the pubescence and, if gleaming golden, without any background of dull frosty white crinkly pubescence; wings without any distinct spot-like infuscations on the cross veins or other veins . . . . . 85.

85. (102) Abdomen with the red more poorly developed, more inconspicuous, only obscurely present on sides or narrowly across hind margins of last 2 or 3 tergites . . . . . { 86 ♂♂ / 96 ♀♀

86. (89) Eyes distinctly and fairly broadly or more broadly separated above by width of broad front ocellus or front part of tubercle or by the tubercle itself; pubescence longer and more shaggy, that on thorax without a distinct cropped off appearance and that on abdomen longer; last few tergites more distinctly margined with red . . . . . 87.

87. (88) Smaller form, about 6–8 mm. long, with a wing-length of about 6–8 mm.; head with the upper facets of eyes not markedly coarse, with the proboscis much shorter, only about 3 mm. long; wings more hyaline and only slightly subopaquely yellowish whitish at base, costal cell, and first basal cell, not distinctly tinged yellowish in basal two-thirds and with the basal comb less developed; pubescence predominantly whitish, more sericeous whitish above, that on face and antennae also whitish, that on abdomen towards apex with a pale sericeous yellowish sheen, with the transverse bristly elements across abdomen, especially on sides towards apex, darker and more reddish or brownish; legs with about 6–8 spines below on hind femora, with the claws more gradually and arcuately curved and the pulvilli slightly less developed . . ♂ *imitator* n. sp. (p. 185).

88. (87) Larger and bulkier species, about 10 mm. long and with a wing-length of about 9 mm.; head with the upper facets of eyes rather markedly coarse and the eyes rather large, with the proboscis much longer, about 5½ mm. long; wings with the basal two-thirds distinctly tinged yellowish, the base and costal cell more subopaquely yellowish and with the basal comb distinctly larger; pubescence distinctly more gleaming sericeous yellowish above, that on antennae and face also more sericeous yellowish, that on abdomen on the whole more sericeous yellowish, that on body below distinctly more contrasting in whiteness with that above, with the transverse bristly elements on abdomen not tending to be darker than rest of pubescence; legs with about 11 spines below on hind femora, with the claws distinctly more rapidly bent down, almost at right angles, apically and the pulvilli slightly longer; hypopygium (text-fig. 46)

♂ *latipectus* n. sp. (p. 212).

89. (86) Eyes contiguous or subcontiguous above, touching or almost touching in front of ocellar tubercle, and if very narrowly or almost linearly separated the inner margins of eyes are contiguous or subcontiguous and space is narrower than width of front ocellus; pubescence distinctly much shorter and with a cropped or shorn-off appearance on thorax, and that on abdomen distinctly shorter and less shaggy; last few tergites discally without or scarcely with reddish hind margins, but sides may be sometimes distinctly reddish . . . . . 90.

90. (93) Femora distinctly blackened at bases or even more extensively to beyond middle; head with the antennae entirely dark or black and joint 3 more spindle-shaped, the face very dark or black and with the proboscis entirely black and its labial part more distinctly and finely strigilose; wings with the second longitudinal vein more rapidly bent up, almost at right angles, at its end, with the first posterior cell tending to be more angularly acute apically; abdomen with the reddish on sides, though sometimes obscure, more developed; hypopygium with the beaked apical joints less elongate and less narrowish . . . . . 91.

91. (90) Femora more extensively blackened to beyond middle and almost entire hind ones also black, the hind ones with about 7–8 spines below; head with the eyes in actual contact or touching at a point a little distance in front of tubercle and with the inner margins then rapidly diverging apically, with antennal joint 3 more rapidly attenuate and slender beyond broadest part just before middle, with the proboscis shorter and about 3½ mm. long, with the face slightly longer, more or less subequal in length to combined antennal joints 1 and 2; wings with the discal cross vein only just beyond middle of discoidal cell; pubescence on body below more distinctly and more contrastingly whitish than the sericeous yellowish pubescence above; abdomen with the reddish on sides of tergites 2 and 3 more evident; hypopygium (text-fig. 48) with a distinct apically projecting lobe-like process below aedeagus

♂ *muscoides* n. sp. (p. 217).

92. (90) Femora with only the front and middle ones distinctly darkened to near middle, the hind ones predominantly or almost entirely yellowish and with about 10 spines below; head with the eyes linearly separated, the space narrower than the front ocellus, the space really formed by contiguous inner margins and about as long as ocellar tubercle before diverging apically, with antennal joint 3 less rapidly attenuate and thicker beyond broader part just before middle, with the proboscis slightly longer and about 4 mm. long, with the face relatively much shorter and shorter than combined length of antennal joints 1 and 2; wings with the discal cross vein much beyond middle of discoidal cell; pubescence on body below duller and more straw-coloured, becoming gradually more yellowish towards upper part of pleurae and merging into the sericeous yellowish pubescence above; abdomen with the reddish on sides more obscure, more evident on sides apically; hypopygium (text-fig. 47) without a distinct ventral aedeagal process

♂ *inermis* n. sp. (p. 214).

93. (90) Femora entirely yellowish; head with antennal joint 1 and sometimes 2 and 3 paler and yellowish, and joint 3 less spindle-shaped, the face,

head below, and basal part of proboscis below pale and yellowish or pallid, the labial part of proboscis not visibly strigilose; wings with the second longitudinal vein more gradually curved up at its end and with the first posterior cell less obviously acute apically; abdomen almost without any red on sides; hypopygium with the beaked apical joints distinctly longer and sometimes very elongate and narrowish . . 94.

94. (95) Smaller form, about 6½–7 mm. long and with a wing-length of about 6–7 mm., less bulky; head with the face very short and even shorter than combined length of antennal joints 1 and 2, with the antennae entirely yellowish, joint 3 being reddish yellow and less slenderly attenuated apically, appearing more humped above before middle, with the proboscis shorter and only about 3½–4 mm. long and more black below; wings with the basal comb much feebler, the discal cross vein nearer middle of discoidal cell, the base, costal cell, and first basal cell more subopaquely whitish yellowish and the veins paler; pubescence slightly more yellowish above, that towards apex of abdomen not very much paler, that on body below only slightly paler and more straw-coloured than above; legs with the front femora unarmed and with only about 4–6 spines on hind ones below, with the claws distinctly more rapidly bent down, almost at right angles, near apex, and the pulvilli reaching bent down apices; abdomen, if with reddish only so along extreme sides of venter below; hypopygium (text-fig. 42) with the beaked apical joints very much shorter and less elongate

♂ *xanthocerus* Bezz. (p. 200).

95. (94) Larger and bulkier form, about 10–11 mm. long, with a wing-length of about 10–11 mm.; head with the face longer, more prominent, much longer than combined length of antennal joints 1 and 2, with antennal joints 2 and 3 black, joint 3 more slenderly attenuated apically and not so obviously humped above, the proboscis longer and about 5–5½ mm. long and more yellowish below; wings with the basal comb more strongly and conspicuously developed, the discal cross vein much beyond middle of discoidal cell, with the base, costal cell, and first basal cell more yellowish and the veins more reddish brown; pubescence slightly or tending to be paler, more creamy yellowish above, that in front of wings and on sides of abdomen more ochreous or deeper yellowish in certain lights, that towards apical part distinctly gleaming paler and more sericeous whitish, that on pectus and body low more distinctly whitish; legs with about 1–3 spines on front femora below and about 9–14 spines on hind ones below, with the claws more slender, distinctly more gradually and more arcuately curved, and with the pulvilli scarcely, or about, reaching middle of claws; abdomen with the sides of tergite 1 sometimes reddish; hypopygium (text-fig. 43) with the beaked apical joints very elongate, slender, and narrow . . . . ♂ *karooënsis* n. sp. (p. 201).

(Syn. = *ruficeps* Bezz. nec Macq.)

96. (99) Claws distinctly more gradually or more arcuately curved, with the pulvilli on the whole less developed, scarcely reaching, or just extending beyond, middle of claws; head with the face relatively longer and slightly or much longer than combined length of antennal joints 1 and 2, with the proboscis more extensively or distinctly reddish below, with the

interocular space on vertex relatively broader and distinctly more than 2 times the combined length of antennal joints 1 and 2; wings with the basal comb larger and more developed; pubescence with the bristly elements across hind margins of abdomen tending to be darker, either deeper golden or more brownish, especially at their bases, than the rest of the pubescence . . . . . 97.

97. (98) Smaller and less bulky species, about 6–8 mm. long and with a wing-length of about 6–8 mm.; pubescence distinctly much longer and more shaggy, especially on abdomen, that on thorax above without a cropped-off appearance, distinctly paler, sericeous whitish to pale sericeous yellowish above, that on abdomen paler even if yellowish, that below more markedly whitish and contrasting even with that above, with the bristly transverse elements on abdomen tending to be markedly or even conspicuously darker and more brownish especially towards apical part of abdomen; abdomen with the hind margins of tergites 3 or 4–6 reddish and tergite 7 almost entirely reddish and a longitudinal band across pleurae also reddish, the margins of tergites 5 and 6 usually more broadly reddish; proboscis shorter than 5 mm.; hind femora with only about 6–8 spines below . . . ♀ *imitator* n. sp. (p. 185).

98. (97) Larger and bulkier species, about 10–11 mm. long and with a wing-length of about 10–11 mm.; pubescence distinctly much shorter and less shaggy, that on disc of thorax with a shorn off appearance and that on abdomen very much shorter, not bushy or shaggy, distinctly more yellowish to even deep golden yellowish above and even deeper yellowish in front of wings and on sides of abdomen, not much paler apically, that on body below, though paler, not so frosty white and not contrasting markedly with that above, being more creamy whitish or yellowish, with the transverse bristly elements on abdomen shorter, denser, and gleaming golden, only their apices more gleaming sericeous whitish, the rest of pubescence on abdomen above shorter than bristly elements; abdomen practically with only the hind margins of tergites 6 and 7 and sometimes sides of tergite 1 reddish and the pleurae more diffusely reddish and more so on sternopleuron; proboscis longer, about 5–5½ mm. long; hind femora with more numerous spines, about 9–14, below

♀ *karooënsis* n. sp. (p. 201).

99. (96) Claws distinctly more rapidly bent down, almost at right angles, nearer apex, with the pulvilli longer and just reaching bent down apices of claws; head with the face relatively shorter and subequal to or distinctly shorter to combined length of antennal joints 1 and 2, with the proboscis entirely black or only obscurely reddish below at extreme base, with the interocular space distinctly relatively narrower, only about 2, or distinctly much less, times combined length of antennal joints 1 and 2; wings with the basal comb much reduced; pubescence with the bristly elements across hind margins of tergites not deeper yellowish than rest of pubescence . . . . . 100.

100. (101) Head with antennal joints 2 and 3 black, with joint 3 not very spindle-shaped, broadened basally and gradually narrowed apically, the apical part not very slender, with the proboscis shorter, less than 3 mm. long, with the face only yellowish in front; scutellum with a large triangular

black spot basally, the hind margins of last few tergites and those of sternites more narrowly yellowish or pallid, the extreme sides of tergites below also pallid; wings with the second longitudinal vein distinctly more rapidly curved up at its end, almost at right angles; pubescence distinctly paler above, very pale lemon yellowish and with sericeous gleams to almost whitish sericeous, that on body below scarcely paler than above, that on antennal joint 1 and face shorter and sparser; hind femora with only about 4 spines below in apical half

♀ *damarensis* n. sp. (p. 207).

101. (100) Head with all the antennal joints yellowish, joint 3 more reddish yellow, somewhat spindle-shaped, more attenuated apically and appearing somewhat humped above at broadest part just before middle, with the proboscis longer, about 3½–4 mm. long and sometimes slightly reddened below at extreme base, with the entire face and head below pallid; scutellum entirely or predominantly yellowish and with the hind margins of last few tergites and the hind margins of sternites more broadly yellowish; wings with the second longitudinal vein less rapidly curved up at end; pubescence more yellowish to golden yellowish above, that on pleurae creamy or very pale yellowish and towards pectus thus distinctly paler than above, that on antennae and face denser and longer; hind femora with about 4–6 spines from just before middle to apex below . . . . . ♀ *xanthocerus* Bezz. (p. 200).

102. (85) Abdomen with the red very conspicuously and extensively developed, especially in ♂♂, and also very broadly and conspicuously across hind margins of most of the tergites and on sides in ♀♀, the abdomen being almost entirely or predominantly red in some cases . . { 103. ♂♂ / 107. ♀♀

103. (106) Head with the eyes contiguous or in contact above in front of ocellar tubercle for a short distance, with antennal joint 1 distinctly shorter, only about 2, or a very little more, times as long as 2, not much darkened; pubescence much paler, very pale sericeous yellowish or gleaming sericeous whitish above, that on abdomen also paler or with much paler sericeous gleams, that on body below also markedly frosty whitish, that on antennae and face sericeous whitish; abdomen with the reddish hind margins of tergites also discally more developed; legs with the femora darkened or blackened at bases or even to beyond middle, or at least distinctly dark at extreme bases . . . . . 104.

104. (105) Head with antennal joint 1 shorter, scarcely 2 times as long as 2, with joint 2 longer than broad, with 3 almost spindle-shaped, broadest just before middle, then rapidly attenuated apically, with the face relatively shorter, with the eyes in contact above for a distance nearly as long as tubercle, with the proboscis about 3–3½ mm. long and visibly finely strigilose below; pubescence more uniformly sericeous whitish to pale sericeous yellowish above; abdomen with the red on sides of tergites 2 and 3 much broader; wings with the first posterior cell distinctly more angularly acute apically; legs with the femora more extensively darkened or blackened to middle or even much beyond middle, and even hind femora may be extensively blackened, with the claws distinctly more rapidly bent down, almost at right angles, nearer apex, and with the

pulvilli longer and reaching bent apices of claws; hypopygium (text-fig. 48) with the beaked apical joints distinctly shorter, broader, and more leaf-shaped, with a distinct lobe-like process below aedeagus ♂ *muscoides* n. sp. (p. 217).
(Some forms of it.)

105. (104) Head with antennal joint 1 longer, a little more than 2 times as long as joint 2, with 2 transverse, not elongate, with 3 not spindle-shaped, only gradually broadened basally, more rod-like, with the face distinctly longer, with the eyes in contact for a shorter distance in front of tubercle, with the proboscis longer, about 3½–4½ mm., and not visibly strigilose below; pubescence sericeous whitish on occiput and thorax above, becoming distinctly more creamy yellowish to gleaming sericeous yellowish on abdomen and scutellum, the bristly elements on scutellum and abdomen more gleaming golden yellowish, that on body below also whitish; abdomen with the hind margins reddish, broadened on sides but not very broad on sides of tergites 2 and 3; wings with the first posterior cell normal apically; legs with the femora almost entirely yellowish, only the extreme bases of front and middle ones slightly darkened, with the claws distinctly more gradually or arcuately curved, and with the pulvilli not reaching bent down apices of claws; hypopygium (text-fig. 50) with the beaked apical joints elongate and narrowish and without any process below aedeagus . . ♂ *pruinosulus* n. sp. (p. 224).

106. (103) Head with the eyes separated above by width of front part of ocellar tubercle, with antennal joint 1 distinctly longer, about 3–4 times as long as 2, more darkened or even blackened above; pubescence distinctly more yellowish, pale golden to deep golden yellowish above, that on abdomen also deep golden yellowish and with more golden gleams, that on body below only a little paler yellowish or straw-coloured yellowish and not frosty whitish, that on venter even very pale sericeous yellowish in some specimens, that on antennae and face gleaming golden yellowish; abdomen with the hind margins of tergites discally not reddish or more narrowly and inconspicuously reddish, only distinctly reddish on sides or even broadly reddish on sides; legs entirely yellowish; hypopygium (text-fig. 49) . . . . . ♂ *paterculus* Walk. (p. 220).

107. (112) Head with the interocular space distinctly narrower, subequal to, or only a little broader than, length of antennal joint 3, not 1½ times as long, with the frons thus also narrower, with antennal joint 1 shorter, only about 2 times as long as 2, relatively thicker, with 2 slightly less transverse and usually longer than broad, with joint 3 distinctly more spindle-shaped, broadest just before middle, slightly narrowed basally and more rapidly apically, sometimes appearing slightly humped above at broadest part; wings with a tendency for first posterior cell to be more acute apically; abdomen with the red on sides usually more extensively developed, and if less developed interocular space at least is narrower; front tarsi tending to be more thickened, and if not interocular space is narrow . . . . . 108.

108. (109) Red on body more conspicuously and extensively developed, present as a large diffuse spot on each side of vertex on anterior part of frons, antennal joints 1 and 2, the entire face and head below, greater part of

proboscis below, on the humeral part and even sides of thorax, on the post-alar calli, the greater part of scutellum, almost the entire pleurae, on the hind margins of all the tergites very broadly, the entire sides of abdomen, and even entire apical half of abdomen above, and almost the entire venter; wings with the discal cross vein at about middle or much nearer middle of discoidal cell, and with the basal comb very small; legs with only about 4–5 spines on hind femora below, with the front tarsal joints not markedly thickened; proboscis not so visibly strigilose below ♀ *rufescens* n. sp. (p. 216).

109. (108) Red on body not so extensively developed, not present on all these sites, and not to the same conspicuous extent on abdomen or on pleurae, much black being present on pleurae and abdomen, and frons almost entirely black; wings with the discal cross vein distinctly, or even much, beyond middle of discoidal cell and the basal comb larger; legs with more than 5 spines on hind femora below, with the front tarsal joints remarkably and conspicuously thickened; proboscis distinctly more visibly and finely strigilose below . . . . . 110.

110. (111) Head with the interocular space slightly narrower, distinctly less than 2 times combined length of antennal joints 1 and 2, with the frons thus narrower and inner margins of eyes almost subparallel, with antennal joint 3 distinctly more spindle-shaped and more rapidly attenuated apically, with the proboscis more visibly strigilose below and only about 3 mm. long, with the face tending to be only reddish anteriorly; abdomen with the red or reddish less extensively developed, that on sides, even if conspicuous, less broad and not broadly quadrate, and the hind margins tending to be less broadly red, and pleurae with less red; wings with a distinct tendency for first posterior cell to be more distinctly or markedly angularly acute apically; pubescence on the whole tending to be paler above, very pale sericeous yellowish, and with even more whitish sericeous gleams in some specimens, that on body below apparently whiter to frosty whitish; hind femora with about 7–9 spines below ♀ *muscoides* n. sp. (p. 217).

111. (110) Head with the interocular space relatively broader, quite 2 times combined length of antennal joints 1 and 2, the frons thus slightly broader and the inner margins of eyes slightly more diverging anteriorly, with antennal joint 3 slightly less spindle-shaped and slightly less rapidly narrowed apically, with the proboscis apparently even more finely strigilose below and about $3\frac{1}{2}$–$4\frac{1}{2}$ mm. long, with the face more extensively yellowish or reddish; abdomen with the red on sides very extensively and broadly developed, a broad more or less quadrangular salmon red or reddish patch on each side of tergites 2–4 being conspicuous and extending even discally, and the reddish hind margins discally also sometimes tending to be broader and also with more red on pleurae; wings with the first posterior cell on the whole less angularly acute apically and sometimes even normal; pubescence on the whole deeper yellowish sericeous or golden yellowish above, that on pleurae also more straw-coloured, less markedly white; hind femora with about 8–12 spines below . . . . . ♀ *transitus* n. sp. (p. 222).

112. (107) Head with the interocular space distinctly broader, distinctly much

broader than length of antennal joint 3, at least 1½ times as long, with the frons thus much broader, with antennal joint 1 distinctly longer, about 2½–3, or even a little more, times as long as 2, with 2 more transverse and not longer than broad, with joint 3 not spindle-shaped, more rod-like, tapering gradually from a broadened base; wings with the first posterior cell more normally obtuse apically; abdomen with the red on sides, though sometimes broadish, tending to be less extensively developed, only the hind margins on sides of tergites being broader than discally; front tarsi less markedly thickened . . . . . 113.

113. (114) Claws distinctly more rapidly bent down, almost at right angles, nearer apex, the pulvilli appearing longer; pubescence on body above distinctly more yellowish, golden yellowish to deep golden yellowish, that on frons, antennae, and face distinctly more golden yellowish, that on pleurae and pectus more straw-coloured yellowish to pale creamy yellowish; red on abdomen, especially on sides, across hind margins broader and more extensive, with a longitudinal reddish band along pleurae, and to a certain extent lower part of mesopleuron is also reddish, with the scutellum almost entirely reddish; wings with the veins darker and more dark brownish and the basal comb smaller; smaller species, less bulky, about 5–8 mm. long and with a wing-length of about 5½–8 mm.

♀ *paterculus* Walk. (p. 220).

114. (113) Claws distinctly more gradually or arcuately curved, the pulvilli appearing shorter; pubescence distinctly paler and gleaming more sericeous whitish on occiput and thorax above, even that on abdomen gleaming more whitish or very pale sericeous yellowish in certain lights, the depressed hair-like scaling and fine pubescence on abdomen above whitish, the transverse bristles more golden but their apices gleaming more whitish, pubescence on frons, face and antennae gleaming more sericeous whitish but with paler yellowish tints, that on body below distinctly more frosty whitish, especially on head below and pectus; red on hind margins of tergites not conspicuously broadened on sides, the red on sides thus less extensive, the red on pleurae absent or much reduced, and the scutellum with a much broader black base; wings with the veins more reddish or yellowish brown and on the whole paler, with the basal comb larger; slightly larger and more bulky species, about 8–9 mm. long and with a wing-length of about 8–9 mm.

♀ *pruinosulus* n. sp. (p. 224).

115. (78) Integument of body reddish brown or muddy brown and entire abdomen muddy brown, reddish brown to ochreous or sienna brownish; wings with a distinct subopacity and whitish tint . . . . . 116.

116. (117) Larger and bulkier species, about 10 mm. long and with a wing-length of about 9 mm.; legs with denser and longer hairs on femora, with more numerous, about 14–16, spines on hind femora below, with the claws more slender, distinctly more gradually and arcuately curved, the pulvilli distinctly shorter and not reaching apices of claws; head with the eyes very narrowly separated above in ♂ by a space as wide as front ocellus, with the face distinctly longer and more prominent, much longer than combined length of antennal joints 1 and 2, with joint 3 more rod-like, tapering to apex, the basal element of terminal style longer and more

developed, with the proboscis longer, about 5 mm. long; pubescence distinctly paler and more sericeous whitish on thorax in front, becoming very faintly and feebly pale sericeous yellowish discally and on scutellum, that on abdomen more sericeous whitish, the elements transversely across hind margins tinted slightly pale yellowish in certain lights, the pubescence on mesopleuron almost lemon yellowish, that on body below also more or less gleaming sericeous whitish, the metapleural tuft, hair on coxae, and on head below tending to be more contrastingly whitish; wings on the whole with a more distinct whitish subopacity, and the first posterior cell not tending to be angularly acute apically; entire body sienna or muddy brownish, the thorax more reddish brownish, without any conspicuous ivory whitish or yellowish hind margins to tergites; hypopygium (text-fig. 51) with the beaked apical joints elongate and narrow, without any process below aedeagus

♂ *pallescens* n. sp. (p. 226).

117. (116) Smaller and less bulky species, about 7–8 mm. long and with a wing-length of about 7 mm.; legs with sparser and shorter hairs on femora below in ♂♂, with fewer and only about 3–4 slender spines below on hind femora, with the claws distinctly more rapidly bent down, almost at right angles, nearer apex, the pulvilli distinctly longer and reaching bent-down apices of claws; head with the eyes in ♂♂ contiguous above for a short distance in front of tubercle, with the face much shorter, less prominent, slightly shorter than combined length of antennal joints 1 and 2, with joint 3 more spindle-shaped, broadest just before middle, narrowed basally and more rapidly narrowed apically, with the terminal basal element of style small, with the proboscis shorter and only about 2–2½ mm. long; pubescence distinctly more yellowish or sericeous yellowish above, even in ♂♂, that towards apex of abdomen in ♂♂ tending to become more creamy yellowish, more sericeous yellowish or golden in ♀♀, that below in both sexes very pale, straw-coloured whitish to yellowish and even on pectus less markedly whitish; wings with a feebler whitish subopacity and with the first posterior cell tending to be angularly acute apically, especially in ♂♂; abdomen and scutellum more reddish brown, and rest of body slightly darker brownish and with conspicuous ivory whitish hind margins on tergites which become slightly broader apically and on sides and with the extreme sides of tergites pallid; hypopygium of ♂ (text-fig. 52) with the beaked apical joints very much shorter, broader, and more leaf-shaped, with a distinct medial, lobe-like process ventrally below aedeagus . ♂ ♀ *annuliventris* n. sp. (p. 228).

D. (A) Pubescence on body more conspicuous, much longer, even markedly long, giving the insects a markedly shaggy, bushy, puff-like, or brush-like appearance, that on abdomen markedly long and shaggy, that on sides and apical parts shaggy or tuft-like, that on first antennal joints, face, and especially on lower parts of genae long and bushy and usually with very conspicuous, long, stoutish bristles or bristly elements, the pubescence on thorax rarely not shaggy, with the bristles on abdomen long, stout, and usually very conspicuous and those on thorax also well developed; wings with the discoidal cell usually distinctly more truncate apically, the apical cross vein being long, more often with an extensive

pattern of dark infuscations, large spots, or with a system of spots or distinct spot-like infuscations on cross veins and along or on other veins, the wings sometimes appearing mottled and, if without extensive infuscations, the cross veins are at least spotted and pubescence on body is long and very shaggy, with the squamal fringe usually longer and with distinct stiffer bristly elements and with the basal comb strongly developed; eyes in ♂♂ always separated above by at least width of ocellar tubercle and sometimes by a space distinctly broader than tubercle, with the upper facets of eyes scarcely, or only slightly, coarser than lower ones; frons in ♀♀ more convex and usually without a distinct depression; antennal joint 3 usually longer, more distinctly and markedly attenuated apically, rod-like in only a few species; legs with the claws less curved, less markedly sickle-shaped, often almost straight or at least straighter, and with the pulvilli poorly developed and confined to base of claws in ♀♀, scarcely reaching middle of claws in majority of ♂♂, long in only a few ♂♂ and even entirely absent in some ♂♂ and ♀♀; hypopygium of ♂♂ with the beaked apical joints usually shorter, comparatively very much broadened basally, more often leaf-shaped, almost always distinctly and deeply foveately depressed above, rarely elongate. 1. (Group 3.)

1. (66) Wings more infuscated, mottled, or extensively spotted, or if more hyaline with more distinct and more conspicuous spots or spot-like infuscations on cross veins of basal cells, at fork of second and third longitudinal veins, at bases of veins between discoidal and third posterior cells and between submarginal cells, on apical cross vein of discoidal cell, and sometimes at apex of first posterior cell or even near ends of other veins in posterior part of wings, with the discal cross vein distinctly beyond or much beyond middle of discoidal cell, and if at about middle wings are extensively spotted; head with distinctly longer, more numerous, and more conspicuous bristles, those on antennal joint 1 below long and conspicuous, usually very much longer than the joint, with more numerous and longer bristles on face in front, on genae and with a brush or tuft of more numerous, longer, and more conspicuous ones on lower parts of genae, with antennal joint 1 thickened, incrassate, or even barrel or sub-barrel shaped, and if slender with at least long bristles or with more numerous bristles on face and genae, with antennal joint 3 usually more slender, with a more slender apical part or half, rarely rod-shaped, and if so with joint 1 incrassate or with more and longer bristles on joint 1; general pubescence on body longer, more shaggy or bushy, appearing less fine, that on abdomen usually longer, more recumbent, more bushy, and with longer bristles, the pubescence not tending to be erect and puff-like on abdomen, that on squamal fringe longer and with distinct, more numerous and longer intermixed bristles or bristly elements; scutellum black in majority, red or reddish in only a few; pulvilli in ♂♂ extending beyond, reaching middle or just falling short of middle of claws and much reduced and confined to base of claws in ♀♀, rarely very vestigial or almost absent in both sexes, and when vestigial antennal joint 1 is incrassate and bristles on face and genae are well developed, with the claws usually less slender and more curved . . . 2.

2. (23) Wings with the anterior half up to end of costal cell, or end of marginal cell, darkly infuscated yellowish brown, reddish brown, brownish to very dark blackish brown or black, with this infuscation distinctly well marked off or sharply marked off and delimited from posterior hyaline or more hyaline part, without any conspicuous, large, rounded spots in apical and posterior part, or without smaller, but outstanding and contrasting spots on cross veins and bases of other veins in posterior part, and when such spots are present they are situated along hind border of infuscated anterior part or are only present as inconspicuous infuscations along some of the posterior veins and are fewer, smaller, and less outstanding . . . . . 3.
3. (16) Wings with the anterior infuscated part usually paler and, when dark, then with more brownish, not markedly very dark brownish black or black, with the darker infuscations or spots on apical cross veins of second basal and discoidal cells faint or at least not conspicuous and contrasting and rarely with a distinct infuscation at base of second submarginal cell, thus without 3 large conspicuous, outstanding, rounded black spots along hind border of the anterior infuscated part, without an infuscation at end of vein between submarginal cells, also without distinct, small, rounded spots on veins in posterior hyaline part, these, when present, very indistinct and in form of slight infuscations along some of the veins; pubescence on body predominantly pale sericeous yellowish or whitish, pale yellowish or ochreous or even reddish, but with much yellowish, brownish yellow to brownish golden hair intermixed on head and thorax, with the bristles on lower parts of genae entirely whitish, yellowish, pale reddish brown or reddish, and usually without any black bristles on upper parts of genae; claws, in ♂♂ at least, comparatively shorter, with the apices not rapidly bent downwards, and with the pulvilli shorter, scarcely or just reaching the middle of claws, but not extending much beyond middle; hypopygium of ♂♂ with a prominent rim below at base of aedeagus, but without a central carinate, ploughshare-like process below aedeagus . . . . . 4.
4. (9) Legs entirely yellowish, the femora scarcely darkened basally; black bristly hairs or bristles on body less developed and less conspicuous, the head without any black bristles on frons, antennae, and sides of face, or with only a few and inconspicuous intermixed ones, and with the black bristles and hairs towards apex and sides of abdomen and on venter absent or distinctly less developed and less conspicuous, with the basal comb also predominantly or entirely yellowish, ochreous, or reddish 5.
5. (6) Bristles on occiput, frons, on antennae, face, on genae, thorax above and laterally, on pleurae, in metapleural tuft, on scutellum and on abdomen above, on coxae as well as the hairs in more or less 3 stripes on thorax predominantly or entirely cadmium red to almost scarlet red, giving the front part of body a red or purplish red appearance; pubescence on thorax in ♂ at least shorter and with a shorn-off appearance; wings with the anterior infuscated part more uniformly opaquely ochreous or reddish, without the upper part in basal half of first basal cell or the costal cell being paler yellowish white or opaquely whitish, with the

infuscations on cross veins fainter and less distinct, with the basal comb distinctly smaller and the squamae fringed with much reddish hair ♂ ♀ *purpureus* Bezz. (p. 231).

6. (5) All these bristles whitish, pale sericeous yellowish or ochreous yellowish like rest of the hair and, when 3 stripes are present on thorax, they are composed of brownish, ochreous, or slightly orange golden pubescence; pubescence on thorax, even in ♂♂, distinctly longer, with a less shorn-off appearance; wings with the anterior infuscated part more yellowish or yellowish brown, not uniform, but with a distinctly paler, pale yellowish white or opaquely whitish, elongated spot along upper basal part of first basal cell, with the infuscations on cross veins distinctly darker and more conspicuous, with the basal comb yellowish or ochreous yellow and more developed, and the squamae fringed with whitish or ochreous yellowish hair . . . . . 7.

7. (8) Pubescence on body predominantly ochreous yellow to ochreous golden, more creamy on abdomen in ♂, with the stouter bristles on head and antennae entirely yellowish or brownish yellow, without black ones, with distinctly fewer and often without any conspicuous black hairs and bristles ventrolaterally towards apex of abdomen and on sides in both sexes; antennal joint 3, especially in ♀, broadest just before middle, more rapidly narrowed apically and with only about the apical third slender; proboscis shorter, about 4–4½ mm. long; wings with the infuscated part more yellowish, the opaquely whitish spot in first basal cell less conspicuous, with the basal comb more ochreous and without any very dark or black intermixed spines, with the squamal fringe creamy yellowish to yellowish; halteres with paler and more yellowish knobs; hind femora with fewer spines, about 7–9, below; hypopygium of ♂ (text-fig. 54) . . . . . ♂ ♀ *darlingi* n. sp. (p. 233).

8. (7) Pubescence on body predominantly very pale sericeous yellowish, even on abdomen of ♂, and, if ochreous hairs are present, they are not predominant over entire body, with that on propleurae distinctly more sericeous whitish, with the stouter bristles on head and antennae having a few or even a large number of black intermixed ones, with the black ones towards apex of abdomen, even in ♂, distinctly more numerous and conspicuous; antennal joint 3 in both sexes slightly longer, broadest much before middle or even near base, then distinctly more gradually attenuated apically, the apical slender part also being much longer, quite half, or even more, the length of joint; proboscis distinctly longer, longer than 4½ mm.; wings with the anterior infuscation tending to be more pale brownish yellow, with the whitish opaque spot in first basal cell more evident, with the basal comb usually more yellowish and often with darker and even black spines, with the squamal fringe either entirely whitish or in part creamy yellowish; halteres with more brownish or brown knobs; hind femora usually with more than 9 spines below; hypopygium of ♂ (text-fig. 53) . . . ♂ ♀ *micans* F. (p. 230).

9. (4) Legs with the femora always darkened below or basally, even extensively to beyond middle; black bristly hairs or bristles on body more numerous, more developed, and always more conspicuous, the head always with more numerous and conspicuous black bristles on frons, antennae and face

or sides of face, with the black bristly hairs or bristles on abdomen laterally towards apex and on venter below always conspicuously developed, those laterally towards apex appearing tuft-like, with the basal comb entirely or predominantly black . . . . . 10.

10. (11) Antennal joint 3 broadest much before middle and nearer base, from there very gradually attenuated apically, the apical slender part being very long, even in ♀; wings with the anterior infuscation scarcely extending beyond end of costal cell or only very slightly, with the greater part of the apical part of marginal cell entirely hyaline, without any distinct infuscations along veins in posterior hyaline part, especially at bases of second submarginal and third posterior cells, and with the elongated whitish opaque spot at bases of first and second basal cells and even in the costal cell more conspicuously evident and visible; pubescence on body above more gleaming and resplendent, sericeous whitish to yellowish, with the 3 stripes of golden brownish hair on thorax, in ♀ especially, more conspicuous and more enhanced by the silvery stripes separating them; larger and often distinctly more bulky species, ranging from 10–15 mm. in length and with a wing-length of about 10–16 mm.

♂ ♀ *hypoleucus* Wied.
(And its numerous forms) (p. 232).

11. (10) Antennal joint 3 broadest at about middle or even before middle, especially in ♀♀, from there more rapidly narrowed apically, the apical third or fourth being very slender; wings with the anterior infuscation always extending distinctly beyond costal cell, even to end of marginal cell, only the extreme apical part of this latter cell being more or less hyaline, often with some distinct, though feeble, infuscations in posterior part and always with a slight, or even distinct, infuscation at bases of second submarginal and third posterior cells, and with the whitish or yellowish white opaque spots at bases of first and second basal cells or in costal cell less conspicuous or even scarcely evident; pubescence on body above duller in appearance, less resplendent or gleaming, but also whitish yellowish to yellow, with the 3 darker stripes on thorax less conspicuously visible and the rest of the hair on thorax less resplendent; smaller and on the whole less bulky species, with an average length of body less than 11 mm. and with a wing-length of about 5½–11 mm. . . . 12.

12. (13) Pubescence predominantly yellowish to golden yellowish, that in 3 stripes on thorax golden, only the sides gleaming more sericeous whitish, that on sides of thorax in front of wings fulvous to orange golden, that on abdomen above pale yellowish sericeous in ♂, slightly more golden in ♀, with the stouter bristles on head and even on genae (excepting the black ones on frons, antennae, and sides of face), and on thorax more distinctly yellowish, some on sides of thorax in ♀ brownish, with the bristly hairs on upper parts of pleurae, in metapleural tuft and on lower parts of pleurae, coxae, sides of abdomen and venter below golden, only the middle part above front coxae, the head below and often upper part of metapleural tuft white-haired, with the black hair laterally below on abdomen and on sides posteriorly more extensive and more conspicuous; wings distinctly broader, with the infuscated part more reddish brown, with the bases of first basal and costal cells less

whitish opaque; antennal joint 3 slightly longer and, in ♀ especially, with the apical part more slender, shorter, and more rapidly attenuated; femora less extensively blackened, only at bases or in basal halves; hypopygium of ♂ (text-fig. 56); slightly bulkier and more compact species . . . . . ♂ ♀ *melanurus* Lw. (p. 236).

13. (12) Pubescence, from side, predominantly whitish or sericeous whitish to very pale sericeous yellowish, that on thorax above pale golden to brownish golden, that on sides of thorax very pale yellowish or brownish, not orange golden, the bristles there being reddish brown or pale yellowish, that on abdomen paler or straw-coloured yellowish or slightly yellowish sericeous, not deeply golden, with yellowish reflections in ♀, in certain lights, with the bristles on head, excluding black ones, those on thorax and scutellum whitish or much paler yellowish or darker brownish to reddish brown, with the hair on pleurae, those intermixed on sides of abdomen basally more extensively or even entirely whitish, with the bristly hairs on coxae straw-coloured yellowish or brownish, not golden, and lower part of metapleural tuft straw-coloured yellowish or brownish, with the black hair on abdomen slightly less extensive and less conspicuous; wings distinctly narrower and more elongate, with the infuscation either very pale yellowish brown or very dark, almost blackish brown, without a reddish tinge, less uniform, but with the whitish or pale yellowish white opaque spot in first basal cell and costal cell more evident or even very distinct and often with the infuscation at bases of second submarginal and third posterior cells more distinct; antennal joint 3 distinctly shorter and in ♀♀ with the slender apical part slightly longer; femora distinctly more extensively blackened, almost entirely so or to very much beyond middle; hypopygium of ♂♂ (text-fig. 55); slightly narrower and more elongate and on the whole smaller species 14.

14. (15) Pubescence on body appearing paler, with the bristles paler, more whitish to pale yellowish, those on occiput, thorax, sides of thorax, in lower part of metapleural tuft and on coxae straw-coloured yellowish to very pale yellowish, with comparatively fewer black bristles on frons, antennae, and sides of face, those on genae always pale or even whitish, with the hair on abdomen in ♀ gleaming pale yellowish sericeous or even whitish in certain lights; wings with the anterior infuscation paler and often more yellowish brown, with the apical part of marginal cell more extensively hyaline, with the infuscations at bases of second submarginal and third posterior cells less distinct, often scarcely visible, with a tendency for first posterior cell to be narrow, elongate, and much longer than second posterior cell; antennal joint 3 in ♀ at least with a tendency for the slender apical part to be slightly longer

♂ ♀ *hirtus* Lw. (p. 235).
(Western forms.)

15. (14) Pubescence on body appearing darker, but actually also predominantly sericeous whitish, but with the bristles on front part of body reddish brown, golden brown to brownish, those on occiput, thorax and especially on sides of thorax, in lower part of metapleural tuft and on coxae reddish brown to brownish, with distinctly more numerous and more extensive

black bristles on frons, antennae, and sides of face, those on genae always with some brownish tipped ones or pale reddish brown intermixed ones, the hair on abdomen in ♀ with a more bronzy or brownish golden sheen in certain lights; wings with the anterior infuscation much darker, very dark blackish brown, also more extensive in apical part of marginal cell, often occupying entire apex and with more distinct infuscations at bases of second submarginal and third posterior cells and often also along apical cross vein of discoidal cell, with the first posterior cell usually broader and shorter, subequal to or only slightly longer than second posterior cell; antennal joint 3 in ♀ at least with the slender apical part less slender and slightly shorter . . ♂ ♀ *hirtus* Lw. s. str. (p. 235).

(Eastern forms.)

16. (3) Wings with the anterior infuscation or infuscated part much darker, very dark blackish brown to blackish, with the spots on apical cross veins of second basal and discoidal cells and at base of second submarginal cell much darker, larger, more rounded and more conspicuous, prominently visible as a row of 3 conspicuous spots along hind border of anterior infuscation, usually with a distinct infuscation at apex of vein separating submarginal cells, rarely without more distinct and more rounded, small spots on veins in posterior part of wing or at least on some of these; pubescence on body predominantly white, with a silvery whitish sheen, but with numerous dark or black bristles on front part and much black hair on abdomen below, with the bristles on lower part of genae more often with a few black intermixed ones and always with some black bristly hairs along its upper parts; claws, in ♂♂ at least, comparatively very elongate, their apices more rapidly bent downwards and with the pulvilli much longer, extending to much beyond middle of claws; hypopygium of ♂♂ with a distinct, central, ventral, carinate process below aedeagus in its basal half, often projecting forwards like a ploughshare 17.

17. (22) Spines on legs distinctly very dark blackish brown or black; pubescence discally on thorax with numerous and often conspicuous dark or brownish hairs, with the stout bristles on abdomen above darker, dark brownish, reddish brown to black, though some towards the apex may also be paler and more yellowish, with the pubescence on venter yellowish or brownish yellow, with very little white and with the black hair on sides of abdomen and at apex distinctly denser and more conspicuous, with the hair just above wing-bases, especially in ♀, more often yellowish to brownish yellow; wings without any black spots in posterior part or with only 2 or 3 comparatively small ones at apex of first posterior cell and at bases of second and third posterior cells, with the middle part of first submarginal cell (between the 2 large black spots) entirely infuscated or distinctly less hyaline; antennal joint 3 more slender and more attenuated and slender in about apical third; aedeagus in ♂♂ (text-fig. 57) with a short central, carinate process ventrally in basal half, scarcely projecting apically . . . . . 18.

18. (19) Wings without any spots in posterior hyaline part or with only a feeble infuscation at base of fourth posterior cell; genae and lower parts of genae always with some, or a good few, intermixed, black bristles; bristles

on abdomen above with very dark brownish to blackish ones, only those at apex being slightly paler, those on front coxae also with distinct dark brownish or blackish intermixed ones; hair above wings on each side of thorax more brownish yellow, and hair on squamae yellowish brown and the bristles on front part of thorax darker and more brownish

♂ ♀ *servillei* Macq. (p. 237).

(Namaqualand and Karoo forms.)

19. (18) Wings always with black spots in posterior part, either on all three sites or, if only on one, this spot is larger and more distinct; genae and lower parts of genae without any black bristles or with only 2 or 3 black ones; bristles on abdomen above paler, more pale brownish to brownish, the apical ones often paler or with more distinct pale tips, those on front coxae yellowish to pale yellowish brown; hair above wings on each side of thorax paler yellowish or very pale, and squamal fringe whitish to creamy, and the bristles on front part of thorax also distinctly paler and more pale yellowish . . . . . 20.

20. (21) Wings with 3 distinct infuscations in posterior hyaline part; genae and front coxae without any dark or blackish bristles; bristles on abdomen above in middle part darker brownish . ♂ ♀ *servillei* Macq. (p. 238).

(S. Cape and S. Karoo forms.)

21. (20) Wings usually with only 2 infuscations in posterior part, an indistinct one at apex of first posterior cell and a large distinct one at base of fourth posterior cell; lower parts of genae and front coxae sometimes with 2 or 3 dark or blackish bristles; bristles on abdomen above often much paler and even more yellowish in middle part

♂ ♀ *servillei* Macq. (p. 238).

(Western and Eastern Province forms.)

22. (17) Spines on legs paler and more brownish or yellowish brown; pubescence discally on thorax without any dark conspicuous hairs or with very few and insignificant ones, with the stout bristles on abdomen above distinctly yellowish to very pale yellowish brown or red, with the pubescence on venter predominantly whitish, only some bristles on sides being slightly yellowish, with the black hair on sides of abdomen and at apex comparatively less dense and less conspicuous, with the hair just above wing-bases sericeous whitish like rest of hair; wings more constantly with a large spot at base of third posterior cell and a smaller one at apex of first posterior cell, but often also with a small one at apex of discoidal cell, with the middle part of first submarginal cell (between the 2 large spots) more extensively or almost entirely hyaline; antennal joint 3 distinctly less slender, more rod-like, the apical part less slender and much shorter; aedeagus in ♂ (text-fig. 58) with a longer, central, carinate process ventrally in basal half, which is also prominently produced, ploughshare-like apically. (Genae always with black bristles below and upper part of metapleural tuft and the squamal fringe always sericeous white.) . . . . ♂ ♀ *pentaspilus* Bezz. (p. 239).

23. (2) Wings either extensively mottled or spotted and with large, rounded spots on cross veins, even if there is a well marked off anterior more darkly infuscated costal part, or with an indistinctly marked off darker costal and basal part and with small dark or black infuscations or spots on

cross veins and other veins, which are much darker, with the anterior infuscation more prominent and outstanding, or the wings are almost entirely hyaline or greyish hyaline and with or without infuscations on cross veins . . . . . 24.

24. (47) Legs with very dark blackish brown to black, mostly black, spines; wings with the more uniformly infuscated costal and basal parts darker, more blackish brown to black, and usually more distinctly marked off from rest of wing, the rest either with large, rounded, often contiguous or confluent, dark blackish brown to black spots or with smaller dark spots . . . . . 25.

25. (46) Wings extensively mottled or spotted (cf. pl. 1, figs. 2, 3, and 4, Ann. S. Afr. Mus., vol. xviii, and fig. 3, p. 59, The Bombyliidae of the Ethiopian Region, by Bezzi), the spots large and conspicuous, the costal and basal part very distinct, with the spots at apex of second basal cell, on discal cross vein and, especially, at base of second submarginal cell always conspicuously large and rounded, with infuscations or spots always present, even if small, at ends of first longitudinal vein and vein between submarginal cells and at apex of anal and axillary cells; pubescence on thorax discally always with some golden, deep golden or brownish golden hair, often in stripes and not entirely sericeous or silvery whitish, with the black hair on abdomen laterally and ventrally towards apex always more conspicuously tuft-like, visible from above, and also more extensively developed laterally below . . . 26.

26. (41) Wings (pl. 1, figs. 2 and 3, Ann. S. Afr. Mus., vol. xviii) always with a distinct spot, often large, at about middle of the more hyaline apical part of marginal cell, which is usually contiguous or confluent with large spot at base of second submarginal cell, with the spot at end of second longitudinal vein also more rounded and less diffuse or elongated, the second basal cell usually with a larger hyaline part or spot near its apex (if not, then at least the apical part of marginal cell contains a distinct spot at about the middle) . . . . . 27.

27. (38) Wings with a pattern as figured (pl. 1, fig. 3, Ann. S. Afr. Mus., vol. xviii), with large, rounded spots at apex of second basal cell, on discal cross vein, at base of second submarginal cell, rounded ones at base of third posterior cell, on apical cross vein of discoidal cell, and at apex of anal and axillary cells, with smaller ones at ends of second longitudinal vein and vein between submarginal cells as well as distinct continuations of the posterior spots along the posterior veins separating posterior cells, with a very large, or at least moderately large, conspicuous spot at apices of anal and axillary cells . . . . . 28.

28. (33) Wings with the rounded spot at apex of second basal cell confluent with the very large, ovate, or elliptic, usually bipartite, spot at apex of anal and axillary cells, this latter spot usually being distinctly larger, or at least as large as the other, and not extending much into fourth posterior cell and more removed from hind border of wing, thus more in an oblique straight line with spot at apex of second basal cell and spot-like infuscation at base of discoidal cell and middle of first basal cell, with the bases of anal and axillary cells usually less extensively infuscated; pubescence with the black hair on abdomen very conspicuous, more distinctly visible

from above, the entire apical part or half appearing as a black tuft; hypopygium of ♂♂ without a complex, ventral, aedeagal process below . . . . . 29.

29. (32) Forms with usually more numerous pale bristles on body, especially in ♀♀, numerous intermixed yellowish, brownish yellow to reddish yellow ones being present on occiput, front part of thorax, disc and base of thorax, on scutellum and transversely across basal half of abdomen, those towards apex of abdomen much longer-tipped, whitish or pallid, with 3 stripes of paler brownish golden hair on thorax and also with more yellowish intermixed hairs on sides of thorax; wings with spot at apices of anal and axillary cells as large or larger than spot at apex of second basal cell, very confluent with it . . . . . 30.

30. (31) Wings with the confluent spots at apex of second basal cell and apices of anal and axillary cells not, or scarcely, confluent with anterior basal infuscation, and with the large rounded spot on discal cross vein not contiguous or confluent with the one at base of third posterior cell, the spots tending to be less confluent, there being no distinct tendency for wings to show 3 broad transverse dark bands

♂ ♀ *megaspilus* Bezz. s. str. (p. 240).
(And forms of it.)

31. (30) Wings with the confluent spots at apex of second basal cell and apices of anal and axillary cells distinctly and broadly confluent with the basal infuscation and with the larger, rounded spot on discal cross vein confluent or touching one at base of third posterior cell, the other spots also tending to be larger and more contiguous or confluent, there being thus a distinct tendency for wings to show 3 transverse dark bands

♂ ♀ *megaspilus* Bezz. (p. 240).
(Forms of it.)

32. (29) Form with less numerous pale bristles on body, the bristles on these sites being predominantly dark or black, and even those in basal half on abdomen either almost entirely black or at least much darker, with 3 stripes of much darker, more obscure, or more brownish hair on thorax discally, with the hair on sides of thorax, apart from the black bristles, distinctly less, or not, yellowish; wings with the spot at apex of anal and axillary cells either large and confluent with one above it or often smaller, more tripartite, and less confluent with large one at apex of second basal cell . . . . . ♂ ♀ *megaspilus* Bezz. (p. 240).
(Forms of it.)

33. (28) Wings with the rounded spot at apex of second basal cell not broadly confluent with the spot at apices of anal and axillary cells, either more narrowly confluent or distinctly separated, the latter spot also much smaller than the former, tripartite, divided into 3 spots and nearer or immediately on the hind border of the wings, distinctly not in an oblique straight line with both the spot at apex of second basal cell and the spot-like infuscation at base of discoidal cell and middle of first basal cell, with the bases of anal and axillary cells also distinctly more extensively infuscated if those spots are in contact; pubescence with the black hair on abdomen distinctly less conspicuous from above and, even in very dark forms, not so conspicuously visible from above as a

black tuft-like brush in apical half; hypopygium of known ♂♂ with a complex, ventral, aedeagal process below . . . . . 34.

34. (35) Pubescence on body above with distinctly more numerous pale bristles in ♀, those on occiput, anterior part of thorax, sides of thorax above wings, scutellum, and practically on entire abdomen pale yellowish brown to reddish brown and, if darker on some of these sites, they are distinctly paler on other sites, with the pubescence on disc of thorax in both sexes more extensively brownish golden to fulvous brown, that on abdomen in ♀ distinctly more extensively pale, pale creamy to pale yellowish brown, with pale brownish golden gleams in certain lights; wings with a tendency to show 3 transverse bands of spots, owing to the tendency for spots to be confluent or very near together, with the base of vein separating discoidal and third posterior cells, though rapidly bent to fourth posterior cell, not markedly or sharply bent at right angles and never provided at angle so formed with a short appendix or stump; proboscis comparatively longer, about 5–6 mm. long; legs with the femora slightly less extensively blackened, and in some ♀♀ not darkened or only slightly so at bases

♂ ♀ *ammophilus* n. sp. (p. 244).

35. (34) Pubescence on body above with either entirely black or blackish bristles on sites mentioned or, if paler ones are present, these are comparatively fewer and subordinate to the predominantly black ones in both sexes, but especially on abdomen above, with the other pubescence on body above either entirely or predominantly silvery whitish or, if darker, the golden brownish hair on thorax is distinctly less extensive, that on abdomen in ♀♀ distinctly paler, more whitish, as in ♂♂, or the pale brownish golden hair is distinctly less developed and the bristles on abdomen, however, always entirely black; wings with this tendency to show 3 dark transverse bands either more distinct or much less evident, with the base of vein separating discoidal and third posterior cells rarely not sharply and angularly bent at right angles to fourth posterior cell, and often with a distinct short stump or appendix at angle so formed; proboscis relatively shorter, less than 6 mm.; legs always with the femora in both sexes markedly blackened to much beyond middle and more often only with the extreme apices yellowish . . . 36.

36. (37) Smaller forms, about 5–8 mm. long, with a wing-length of about 5–8 mm.; pubescence appearing much darker from above, the disc of thorax above with more brownish or dark brownish golden hair, also with distinct brownish golden or brownish tipped hairs just above wings and in ♀ with distinctly more brownish golden gleaming hairs on abdomen above, with distinctly more extensive black hair on venter below, with the bristles on thorax and scutellum entirely black, with the coxal bristles predominantly or entirely black, and the bristles in mesopleural tuft also predominantly very dark or black; wings with the spots more confluent and comparatively larger, tending to form more or less 3 irregular transverse black bands, with the tripartite spot at apices of anal and axillary cells contiguous or confluent with spot at apex of second basal cell, with a large and confluent spot at apex of first posterior cell, with the base of vein separating discoidal and third posterior cells tending to be

less constantly bent at right angles, some specimens having this sinuosity almost normal . . . . . ♂ ♀ *hottentotus* n. sp. (p. 241).
(And forms of it.)

37. (36) Larger species, about 8½–11 mm. long, with a wing-length of about 8–11 mm.; pubescence appearing paler and more greyish or silvery whitish above, that on disc of thorax with predominantly silvery whitish hair, only very few yellowish ones being present, that above wings in ♀ also whitish, that on abdomen above silvery whitish, shining silvery whitish, that on venter also with more pale or whitish ones basally and laterally, with distinctly intermixed yellowish to brownish bristles on occiput, thorax, scutellum, and even across second abdominal segment in some specimens, with the front coxal bristles and the intermixed ones on the other coxae as well as bristles in metapleural tuft predominantly yellowish; wings with the spots distinctly less contiguous or confluent (text-fig. 61), more rounded and spot-like and not tending to form 3 typical cross bands, with the spot at apices of anal and axillary cells always smaller and distinctly separated from large and rounded spot at apex of second basal cell, with the spot at apex of first posterior cell more often very small or absent and, if distinct, then not confluent with the other big spot, with the base of vein separating discoidal and third posterior cells more constantly and distinctly sharply bent at right angles and provided with a short stump . ♀ *braunsi* Bezz. (p. 246).

38. (27) Wings with a pattern as figured (Bezzi, pl. 1, fig. 2, Ann. S. Afr. Mus., vol. xviii), with spots also on the same sites, but with or without a very small and insignificant spot at apex of anal cell, and without any, or only minute and very indistinct, spots near apices of posterior veins, the spots at bases of third and second posterior cells not produced or prolonged, comma-like, along posterior veins, and also with the spot-like infuscation at end of vein separating submarginal cells very small, absent, or indistinct . . . . . 39.

39. (40) Pubescence on disc of thorax usually with distinct sericeous yellowish or slightly golden gleams, with a tuft of hair and bristles on post-alar calli distinctly gleaming brownish or yellowish golden, with some or more numerous yellowish intermixed bristles on occiput, on each side in humeral region, on coxae, and on sides of abdomen and venter towards apex, with the dense hair on venter towards apex usually with more dark brownish ones; wings with the infuscated parts and spots tending to be more brownish or even yellowish brownish, a distinct, though sometimes faint, spot always present at apex of anal cell and sometimes with a tendency for spots to be present at ends of some of the posterior veins, with the first longitudinal vein usually paler and more brownish or reddish; spicules on tibiae tending to be entirely yellowish or brownish or at least with some intermixed paler ones and the tibiae themselves sometimes paler; hypopygium of ♂ (text-fig. 64) with the inner apical part of basal parts distinctly longer and more produced and the ventral aedeagal process with 4 spines on it . ♂ ♀ *capensis* Linn. (p. 251).
(And forms of it.)

40. (39) Pubescence on thorax silvery whitish like the rest of the hairs above, with the hair on post-alar calli also gleaming silvery whitish, with all the

bristly hairs and bristles on head and thorax, on coxae and abdomen black, with the hair towards apex of venter appearing entirely or more predominantly black; wings with the anterior infuscation and spots much darker and sooty black, without a spot at apex of anal cell and never with even indications of spots at ends of posterior veins and with all the veins very dark or black; spicules on tibiae entirely black; hypopygium of ♂ (text-fig. 65) with the inner apical part of basal parts not prominent or produced, with the ventral aedeagal process slightly different and having only 2 spines

♂ ♀ *nieuwveldensis* n. sp. (p. 253).

41. (26) Wings (cf. text-fig. 62 in this paper, and Bezzi, pl. 1, fig. 4, Ann. S. Afr. Mus., vol. xviii) without a spot at about middle of apical part of marginal cell, this part being either more hyaline or uniformly infuscated like rest of cell, with only the apex of second longitudinal vein more darkened, with the infuscation at end of vein separating submarginal cells not rounded or distinctly spot-like, but in form of a more elongated terminal infuscation, with the second basal cell entirely infuscated like rest of base or with a small clear spot near its apex . . . . 42.

42. (43) Large species, about 10–12 mm. long, with a wing-length of about 11–12½ mm.; pubescence on body above predominantly silvery whitish, only that on disc of thorax slightly tinted yellowish or brownish golden, that on abdomen above entirely shining silvery whitish, that on venter and apex of abdomen black, with the bristles on body very stout and strong, those on occiput shorter, those on sides of thorax, excluding the black ones in front of wings on each side, on scutellum, and transversely across abdominal segments 1–3 yellowish or reddish brown; wings (text-fig. 62) with the posterior part distinctly more hyaline, with a hyaline or clear spot near apex of second basal cell and another one near apex of first basal cell, with the middle of apical part of marginal cell tending to be more hyaline, with the spot at apices of anal and axillary cells larger, more diffuse, contiguous or confluent with large spot at apex of second basal cell, with the posterior spots on wing tending to be more continued as distinct infuscations along posterior veins; proboscis long, about 5–6 mm. long; legs with more numerous, about 9–10, longer and stouter spines on hind femora below, with the claws more gradually curved downwards apically and with the pulvilli shorter, just reaching or only extending a very little beyond middle of claws; hypopygium (text-fig. 63) . . . . . ♂ *fenestralis* n. sp. (p. 248).

43. (42) Small species, about 5–6 mm. long, with a wing-length of about 5–6 mm.; pubescence on body above not predominantly silvery white, that on disc of thorax, scutellum, and abdomen above more distinctly pale yellowish or straw-coloured yellowish, becoming more brownish towards apex and even, when very pale, the abdomen shows yellowish gleams in certain lights, with the hair on sides of abdomen towards apex and on venter distinctly more brownish, very dark chocolate brownish, with the bristles on body very slender and long, almost hair-like on abdomen, those on occiput also long and slender, those on thorax darker and more chocolate brownish or darker yellowish brown, those on abdomen tending to be darker also; wings (cf. pl. 1, fig. 4, Ann. S. Afr. Mus., vol. xviii)

with the anterior half or darker part chocolate brownish and posterior part also distinctly tinged faintly brownish, with at least no clear spot in second basal cell and without a distinct clear area in first basal cell, with the apical part of marginal cell uniformly infuscated like rest of cell, with the spot at apex of anal cell smaller and widely separated from spot at apex of second basal cell, without any or with only very indistinct infusions near apices of posterior veins, not continuous with the larger spots; proboscis shorter in relation to body, less than 6 mm. long; legs with much fewer, only about 4–7, more slender spines on hind femora below with the claws slightly more rapidly bent downwards apically and with the pulvilli distinctly longer, extending much beyond middle of claws . 44.

44. (45) Pubescence on body distinctly tinted more pale brownish yellow, that on abdomen above even darker, becoming more distinctly rusty brown posteriorly, with the long bristles on occiput and thorax above (excluding lateral ones in front of wings), those on scutellum and abdomen above more yellowish brown, with the hair along upper parts of pleurae also more distinctly yellowish; wings less pointed apically, with the front half slightly darker, more chocolate brownish, with the spots at bases of third and second posterior cells and apex of first posterior cell small, much smaller than the other spots, without any spots at ends of posterior veins and with scarcely a darker infuscation at apex of anal cell, with the anal cell acute apically and not opening on hind border, with the second longitudinal vein distinctly very undulating; antennal joint 3 slightly shorter and less slender, broadest at about the middle; legs with only about 4, much shorter and finer, spines on hind femora below from just before middle to apex, with the claws slightly longer and distinctly more rapidly bent downwards apically and with the pulvilli longer, nearly reaching apex of claws . . . ♂ *punctatellus* Bezz. (p. 255). (Type specimen.)

45. (44) Pubescence on body almost entirely silvery whitish, that on abdomen with a feeble yellowish sheen in certain lights, with the bristles on occiput, on the rest of head, on thorax and abdomen above darker, very dark chocolate brown, only those on scutellum and some intermixed ones basally on abdomen paler and more yellowish, with the hair on venter and towards apical part of abdomen also chocolate brownish, with that on pleurae, excepting only yellowish metapleural bristles, entirely silvery whitish; wings (cf. Bezzi, pl. 1, fig. 4, Ann. S. Afr. Mus., vol. xviii, as *punctatellus*) distinctly more pointed apically, with the anterior half not quite so dark chocolate brown, with the spots at bases of third and second posterior cells and at apex of first posterior cell comparatively large and rounded, as large as the other spots, with a distinct, though diffuse, infuscation at apex of anal cell and also with faint infuscations near ends of posterior veins, with the anal cell normally opening on hind border of wing and the second longitudinal vein straight to near bent-up end, where there is a slight sinuosity (much straighter than in Bezzi's figure); antennal joint 3 very slender, slightly longer and more rod-like, gradually attenuated from broadest part near base; legs with about 7, longer spines, from near base to apex on hind femora below, the basal spines being remarkably long, almost bristle-like, with the claws shorter,

only gradually curved downwards apically from about the middle and with the pulvilli distinctly shorter, just extending a little beyond middle of claws . . . . . ♂ *punctatelloides* n. sp. (p. 255).
(Labelled as *punctatellus*.)

46. (25) Wings (cf. Bezzi, p. 5, fig. 4, The Bombyliidae of the Ethiopian Region) not extensively mottled or spotted, with the anterior infuscated costal and basal part less distinctly marked off, the spots, even the larger ones at apex of second basal cell, on discal cross vein and at base of second submarginal cell, being comparatively smaller, and the others at bases of second and third posterior cells much smaller, without any spot, or only a very feeble one, at apex of first posterior cell, without any infuscation at ends of second longitudinal vein and vein separating the submarginal cells, thus with a more hyaline apical part or half of marginal cell and entirely without any infuscations at apices of anal and axillary cells; pubescence, excluding black or yellowish bristles on thorax and scutellum, entirely silvery whitish on thorax, even discally, there being no darker or golden hairs in form of stripes, the abdomen above, excluding whitish-tipped black transverse bristles, with entirely silvery whitish hair, with the black hair on extreme sides of abdomen and apically on venter less extensively developed, not conspicuously visible from above as a black apical tuft or lateral apical tufts, the venter also with comparatively more white hair . . . . ♀ *punctifer* Bezz. (p. 254).

47. (24) Legs with pale yellowish, pallid, brownish yellow to reddish yellow spines; wings if darkened with the darker infuscated anterior half or costal and basal part or base paler, more pale brownish, yellowish brown or yellowish, and not very distinctly or conspicuously marked off from more hyaline posterior part, usually almost imperceptibly merging into hyaline part, the posterior part of wings either with distinct, but smaller and less conspicuous, spots (if larger ones are present, the spines on legs at least are yellowish), or with much fewer or even without any spots, and the entire wings may also be hyaline and unspotted . . . . 48.

48. (55) Pubescence not predominantly or entirely snow whitish, frosty whitish or gleaming sericeous or silvery whitish or predominantly sericeous or golden yellowish, usually appearing greyish sericeous due to an intermixture of pale sericeous yellowish and sericeous whitish elements, usually with some or numerous black or dark bristly hairs and bristles on frons, antennal joint 1 below and on face and with more numerous or more conspicuous black hairs in tufts on extreme sides of tergites below and towards apex of abdomen; wings tinged more greyish or cinereous, the costal and basal parts more brownish or greyish brown, with the spot-like infuscations on cross veins and other veins more distinct, more conspicuous, larger and sometimes more rounded or diffuse, the spots at base of third posterior cell, on apical cross vein of discoidal cell and at apex of first posterior cell being always more or less distinct, and if wings are not very greyish and spots not very conspicuous, pubescence at least is not entirely snow white or golden; antennae with joint 1, though thickened, not barrel or sub-barrel shaped, and with joint 3 not dilated knob-like at base and not club-like; scutellum entirely black and abdomen entirely black in both sexes . . . . 49.

49. (52) Wings with the spot-like infuscations at apex of first posterior cell, on apical cross vein of discoidal cell and at base of third posterior cell small, indistinct, and usually less conspicuous and without any infuscation or distinct spot at ends of second longitudinal vein and the vein separating submarginal cells or at apices of anal and axillary cells, with the discal cross vein usually very much beyond middle of discoidal cell; head with the eyes in ♂♂ distinctly more broadly separated above and at least 2 times as broad as ocellar tubercle, with the interocular space in known ♀♀ also relatively broader and slightly broader than 2 times combined length of antennal joints 1 and 2; hypopygium of ♂♂ with the ramus on each side not produced, and the central process below aedeagus merely raised or produced into a short or long process and not raised arch-like . 50.

50. (51) Larger and bulkier species, about 13–15 mm. long, with a wing-length of about 13–14 mm.; wings with the darker anterior part more blackish brown, more distinct, and more extensive, extending up to end of marginal cell, and this cell thus on the whole more infuscated, with the spots on apical cross veins of basal cells and at base of vein between submarginal cells larger, more rounded, darker, and more conspicuous, and with the infuscations on posterior part of wings also more distinct, with the first posterior cell broader and less acute apically; pubescence appearing slightly more sericeous yellowish even in ♂♂, the sericeous yellowish bands on thorax more conspicuous, the pubescence on abdomen in ♂♂ scarcely more whitish, that in ♀♀ more velvety sericeous yellowish, with more black bristles on lower parts of genae; claws much stouter and with the pulvilli broader and extending slightly beyond middle of claws in ♂♂; hypopygium of ♂ (text-fig. 66) with the basal parts broad and compact, the dorsal division between them deeply sunk in, with the beaked apical joints more deeply and foveately depressed above, with the ventral process below aedeagus in form of an apically produced basal rim, blunt and not hiding the apical part of aedeagus

♂ ♀ *obesus* Bezz. (p. 256).

51. (50) Smaller and less bulky species, about 9½ mm. long, with a wing-length of about 8½ mm.; wings less cinereous, with the costal and basal infuscation paler, more pale yellowish brown, much fainter and distinctly less extensive, the entire apical part or half of marginal cell being hyaline, with the spots less conspicuous, much smaller, and even evanescent in posterior part of wings, especially at apex of first posterior cell and on apical cross vein of discoidal cell, with the first posterior cell narrower and distinctly more acute apically; pubescence in ♂ at least distinctly paler and more sericeous whitish, that on thorax appearing more sericeous whitish and even the sericeous yellowish elements on disc much fainter, the pubescence on abdomen apparently more whitish, becoming even paler apically, with fewer or only 2 or 3 darkish bristles on lower parts of genae; claws distinctly more slender, with the pulvilli much narrower and not reaching middle of claws; hypopygium (text-fig. 67) with the basal parts less broad and compact and not deeply sulcately separated above, with the beaked apical joints less depressed above, with the ventral process below aedeagus much longer, lobe-like, and hiding the apical part of aedeagus . . . ♂ *mollihirtus* n. sp. (p. 258).

52. (49) Wings with all the spot-like infuscations, though slightly duller, distinctly larger, more rounded and more diffuse, those in posterior part of wings scarcely smaller or less rounded than those on apical cross veins of basal cells and at base of vein between submarginal cells, with distinct, though sometimes faint, spots or infuscations at ends of second longitudinal vein and the vein between submarginal cells, at apices of anal and axillary cells and sometimes even with indications of spots even near ends of the posterior veins, with the discal cross vein just, or sometimes apparently scarcely, beyond middle of discoidal cell; head with the eyes in ♂♂ more narrowly separated above and distinctly less than 2 times as broad as ocellar tubercle, with the interocular space in ♀♀ also relatively narrower and only about or less than 2 times as broad as combined length of antennal joints 1 and 2; hypopygium of ♂ (text-fig. 68) with the ramus on each side produced into a pointed process and the central, ventral process below aedeagus inverted U-shaped, projecting arch-like and provided with flattened setae apically . . . . . 53.

53. (54) Pubescence with the 3 stripes on disc of thorax paler, very pale sericeous yellowish or straw-coloured sericeous, with the black hair on sides of abdomen and apical part more extensive and more conspicuous from above, with all the stoutish bristles on head and body pale yellowish to yellowish, there being no very dark and black bristles on lower parts of genae and either none or only a few darkish ones on frons in ♀♀, those on abdomen also paler and more yellowish; wings with the spots more distinct, with the spot at apices of anal and axillary cells also more distinct and often also with faint, though distinct, small infuscations near ends of veins separating posterior cells

♂ ♀ *zoutpansbergianus* n. sp. (p. 260).

54. (53) Pubescence with the 3 stripes on disc of thorax in ♀♀ distinctly more brownish golden and more conspicuous, with the black hair on sides of abdomen laterally and apically less apparent and less conspicuous, with all the bristles on lower parts of genae, all the longer and stouter ones on face, sides of face, on antennae below, on frons, sides of thorax in front of wings and some intermixed ones on coxae black, those on coxae sometimes very dark brownish, with the rest of the bristles on occiput, thorax, and scutellum deeper yellowish, more yellowish brown to brownish, and those on abdomen also more brownish yellow; wings with the spots even duller and less distinct, the spot at apices of anal and axillary cells being very faint and indistinct, without any or with evanescent infuscations near ends of posterior veins

♀ *zoutpansbergianus* var. *occidentalis* n. (p. 262).

55. (48) Pubescence on body predominantly or entirely snow white, frosty whitish, and gleaming sericeous or silvery whitish or predominantly golden yellowish, without any dark or blackish bristly hairs or bristles on antennal joint 1 below, on face or genae and without any tufts of black hair on sides of tergites ventrally below, or if with some black hairs on sides of abdomen these are inconspicuous, and if with black transverse bristles on abdomen rest of pubescence is entirely or predominantly snow whitish or golden yellowish; wings either more hyaline and with a slightly whitish tinge, greyish hyaline, or tinged reddish brownish with the costal and

basal parts more subopaquely whitish, yellowish, or reddish brownish, with the spot-like infuscations on cross veins and other veins if present usually less distinct and less conspicuous, and if conspicuous pubescence on body is predominantly golden or snow white, with the spots at base of third posterior cell, on apical cross vein of discoidal cell and at apex of first posterior cell either absent or scarcely indicated and sometimes without any spots on wings; antennae with joint 1 distinctly more incrassate, more sub-barrel-shaped or even barrel-shaped, and with joint 3 dilated or thickened knob-like at base, thus club-like, or at least more distinctly thickened in basal half, and if very slender and not club-like, joint 1 at least is incrassate and pubescence is snow whitish; scutellum almost always with some red or reddish in ♀♀ especially, but black in some forms, and abdomen sometimes with the hind margins of the tergites or the sides in ♂♂ or in both sexes reddish . . . 56.

56. (59) Pubescence entirely or predominantly gleaming golden or very deep sericeous yellowish; wings distinctly more extensively and more deeply tinged yellowish or reddish brownish in basal two-thirds, the costal cell and basal parts being even darker or deeper and more subopaquely yellowish or yellowish brownish, with the basal comb yellowish or ochreous yellowish; body with more reddish in both sexes, the scutellum being almost entirely red, the hind margins of tergites and sides of abdomen more broadly, conspicuously, and more constantly red in both sexes, with antennal joint 1 usually also with much red and the legs entirely yellowish in both sexes; proboscis distinctly longer, about 4–6 mm.; smallish to rather bulky forms, about 8–14 mm. long and with a wing-length of about 10–15 mm. . . . . 57.

57. (58) Wings relatively shorter, more greyish hyaline, with the costal cell and basal half tinged subopaquely pale yellowish to pale ochreous yellowish, with only spot-like infuscations at fork of second longitudinal vein, on apical cross veins of basal cells and at base of vein beween submarginal cells, there being no distinct infuscations in posterior part of wings, with the veins slightly paler and more yellowish, with the base of vein between discoidal cell and third posterior cell less constantly bent at right angles to fourth posterior cell and more often without a stump; pubescence tending to be more golden and slightly deeper yellowish above, that on pleurae scarcely paler than above, the metapleural tuft more golden yellowish, that on venter also not much paler, almost more ochreous to orange laterally in ♀♀, without any black or dark hairs on sides of abdomen ventrally below in both sexes; scutellum usually more extensively red; antennal joint 1 shorter and only about 2½ times as long as 2 and with the long slender part of 3 apparently slightly more slender and slightly more dilated at apex; hypopygium of ♂ (text-fig. 69) ♂ ♀ *spinibarbus* Bezz. (p. 263).

58. (57) Wings relatively much longer, more distinctly and more extensively tinged yellowish or reddish brownish, even the posterior part slightly tinged and not hyaline, the costal and basal half becoming deeper reddish brown, with, in addition to the same 4 spot-like infuscations, which are darker and more conspicuous, also distinct, though small, infuscations at apex of first posterior cell and on apical cross vein of discoidal cell,

with the veins darker and more reddish brown to dark brownish, with the base of vein between discoidal and third posterior cells more often and more constantly bent at right angles to fourth posterior cell and there provided with a short stump; pubescence on body above tending to be paler yellowish or paler golden, more gleaming deep sericeous yellowish, that towards apex of abdomen in ♂♂ even paler sericeous yellowish, that on head below and pleurae distinctly more contrastingly whitish, that in metapleural tuft also paler and even whitish, that on venter laterally near base also whitish, and that on extreme sides of abdomen and towards apex, in some ♀♀ especially, with tufts or with some or numerous blackish brown to blackish hairs; scutellum usually less extensively reddened, there being a distinct blackish hind border; antennal joint 1 longer and quite 3, or even a little more, times as long as 2 and with the long slender part of 3 relatively less slender and the apex slightly less apparently dilated . . ♂ ♀ *angulosus* Bezz. (p. 265).

59. (56) Pubescence entirely or predominantly snow whitish, frosty whitish and gleaming sericeous or silvery whitish; wings more hyaline or vitreous hyaline, with a faint, but distinct, whitish tint in certain lights, but with the basal part and costal cell sometimes subopaquely pale yellowish, pale yellowish whitish to whitish, with the basal comb entirely snow whitish or with the spines black; body usually with less reddish, the scutellum sometimes entirely black in both sexes, or black in some ♂♂, or with the red distinctly less extensive in both sexes, the abdomen with less red on sides and sometimes entirely black in both sexes, with the femora in ♂♂ tending to be blackened at bases, sometimes more extensively blackened, and sometimes the legs are entirely dark or black in both sexes; proboscis shorter about 1–4 mm. long; very small to medium-sized species, about 3–11 mm. long and with a wing-length of about 3–10 mm. . . . . 60.

60. (63) Very small species, about 3–5½ mm. long and with a wing-length of about 3–5 mm.; wings feebly developed, their bases much narrower and slender, with the alula more reduced and not projecting lobe-like, with the axillary lobe relatively also much narrower and not lobately rounded, with the basal comb very feebly developed, almost absent, the wings hyaline, with a faint milky whitish tint and without any spots on cross veins or other veins; pubescence on body above and below dull frosty or chalky white, without sheen, comparatively less dense, but longer and more shaggy, that on occiput, thorax, and abdomen in both sexes being markedly long, with the individual hairs stouter, stiffer, more woolly in appearance and markedly and visibly fimbriate at their apices and showing a "singed-off" appearance, without any distinct and stouter or more bristle-like ones being present, those on ocellar tubercle and on sides of frons, in ♀♀ especially, dark or blackish; head with the eyes in ♂♂ separated above by width of ocellar tubercle only, the interocular space on vertex in ♀♀ also relatively narrower and slightly less than 2 times as broad as ocellar tubercle, with the frons and face in both sexes also narrower, with antennal joint 1, though thickened, less incrassate or barrel-shaped, with joint 3 thickened in basal half and more gradually narrowed apically, with the proboscis yellowish or reddish

for greater part of its length, only about 1–2 mm. long; scutellum black; legs with the spines on femora and spicules on tibiae poorly developed, the hind femora with only about 2–3 spines in apical half below and front and middle tibiae with very feeble, scarcely visible, spicules; hypopygium of ♂ (text-fig. 70) with the beaked apical joints very small, the basal parts subglobular and basal strut very narrow . . 61.

61. (62) Wings slightly less subopaquely whitish in certain lights, the veins darker and more dark brownish to blackish brown, the alula and axillary lobe apparently slightly less developed; head with the face in both sexes black or very dark, with the proboscis slightly shorter, about 1–1½ mm. long, with antennal joint 1 apparently less thickend and with joint 3 more rapidly tapering apically, the apical part slightly more slender; abdomen only pallid or reddish along extreme sides and at apex and on venter, the hind margins of tergites discally not very broadly pallid even in ♂♂; legs with at least the last 3 or 4 tarsal joints blackened . . . . . ♂ ♀ *minusculus* n. sp. (p. 266).

62. (61) Wings slightly more visibly tinted subopaquely whitish, the veins paler and more yellowish or pallid, the alula and axillary lobe apparently slightly broader; head with the face in ♂ more yellowish, with the proboscis slightly longer and about 2 mm. long, with antennal joint 1 pallid and apparently slightly more incrassate, with joint 3 slightly longer and more gradually narrowed apically, the apical part less slender; abdomen in ♂ almost entirely very pale brownish yellow, paler and more yellowish on sides, with the hind margins of the tergites discally broadly ivory yellowish or yellowish, broader on sides and on venter, and with even the thorax above and scutellum tending to be more dark brownish; legs with only the last 2 tarsal joints blackened

♂ *minusculus* var. *pallidiventris* n. (p. 268).

63. (60) Larger to moderately large species, about 7–11 mm. long and with a wing-length of about 7–10 mm.; wings normally developed, their bases normally broad, the alula and axillary lobe normally lobe-like and broad, the basal comb strongly developed, the wings vitreous hyaline and with sometimes even a stronger milky whitish tint, with the base and costal cell even more subopaquely whitish or distinctly subopaquely pale yellowish and with distinct and fairly conspicuous spot-like infuscations at base of third longitudinal vein, on apical cross veins of basal cells, on apical cross vein of discoidal cell, at bases of veins between discoidal and third posterior cells and submarginal cells, and sometimes even at apex of first posterior cell; pubescence on body silvery whitish and with distinct sericeous or silvery gleams, comparatively denser and, though shaggy, shorter, that on occiput and thorax relative to body shorter and not so erect and bushy, less woolly, the individual hairs and bristles not visibly dilated or fimbriate at their apices, the pubescence on face longer, with distinct and stouter bristles on antennae below, face, genae, on occiput, sides of thorax, scutellum, and transversely across abdomen, the bristly hairs on ocellar tubercle and sides of frons yellowish or also blackish and sometimes the bristles on thorax and on abdomen are darker or even black; head with the eyes in ♂♂ separated above by a space much broader than ocellar tubercle, the interocular space in ♀♀ also

relatively broader and quite 3, or even a little more, times as broad as tubercle, the frons and face in both sexes broader, with antennal joint 1 more distinctly incrassate, especially in ♂♂, with joint 3 either more knob-like thickened at base or very slender and slightly thickened just beyond middle, with the proboscis black and about 3–4 mm. long; scutellum mostly reddish, though black in some specimens; legs with the spines on femora and spicules on tibiae well and strongly developed, the hind femora with about 5–11 spines below; hypopygium of ♂♂ with the beaked apical joints longer and more developed, the basal parts not or less subglobular and the basal strut broader . . . 64.

64. (65) Legs predominantly yellowish, only the bases or basal parts of femora in ♂♂ darkened or blackened, with sparse and shorter hairs on femora below, with the spines on femora on the whole shorter and the spicules on tibiae much shorter, with the claws slightly more curved and the pulvilli longer, just falling short of middle of claws in ♂♂, and visible at bases of claws in ♀♀; wings less tinted whitish in certain lights, with the costal cell, base, basal part of marginal cell, basal half of first basal cell, and to a certain extent even second basal cell distinctly tinged subopaquely yellowish or yellowish whitish, the veins in this region and the first longitudinal vein also yellowish, with the basal comb snow white, with the discal cross vein just beyond middle of discoidal cell, with the knobs of halteres pale yellowish; head with antennal joint 1 in ♂♂ less tubercular below and with shorter bristles below joint 1, with joint 3 shorter and characteristically club-shaped, the basal part being dilated knob-like, with the bristly hairs on ocellar tubercle and sides of frons basally yellowish or pale yellowish brownish, with the bristles on face more numerous and with a distinct tuft of longish and stoutish bristles on lower part of genae; pubescence with all the hairs and bristles on thorax, scutellum, and abdomen white; abdomen with the sides or hind margins of tergites laterally reddish to a variable extent in ♂♂ at least, and with the apical angles of last sternite in ♂♂ less produced; hypopygium of ♂ (text-fig. 71) . . . . . ♂ ♀ *volucer* n. sp. (p. 269).

65. (64) Legs predominantly black or dark in both sexes, only the tibiae may be slightly more brownish in some specimens, the femora black, with denser and longer hair on femora below in ♂♂ especially, with the spines on femora distinctly longer and the spicules on tibiae long and conspicuous, with the claws almost straight and slightly longer, and with the pulvilli minute and vestigial in both sexes; wings distinctly more whitish in certain lights, with the base, costal cell, and basal part of first basal cell subopaquely whitish, the veins conspicuously dark blackish brown or black right to base, the costal veins also conspicuously dark, with the basal comb black, with the discal cross vein very much beyond middle, at about apical third, of discoidal cell, with the knobs of halteres dark brownish or blackish brown in both sexes; head with antennal joint 1, in ♂♂ especially, provided with tubercle-like prominences, each bearing a very long and conspicuous bristle, with joint 3 much longer and more slender, not thickened at base, being slightly thickened and broadest just beyond middle, with the bristly hairs on ocellar tubercle and sides of frons basally blackish or black, with the stout bristles on face fewer

and with a much stouter tuft of finer bristly hairs only on lower parts of genae; pubescence predominantly also silvery whitish above and below, but with a tuft of yellowish, yellowish brown to dark chocolate brownish hairs at apex of abdomen, with the bristles towards apex of abdomen in ♂♂ more yellowish, and those on sides of abdomen and apically in ♀♀ very dark blackish brown to black, and with the bristles on thorax, post-alar calli, and scutellum in ♀♀ golden yellowish to pale brownish golden; abdomen entirely black in both sexes, and with the apical angles of last sternite in ♂ much produced; hypopygium of ♂ (text-fig. 72)

♂ ♀ *leucolasius* n. sp. (p. 272).

66. (1) Wings not mottled, extensively infuscated or spotted, usually distinctly more hyaline even if costal and basal part be slightly tinged yellowish, with the spot-like infuscations less conspicuous or distinct, usually much fainter and fewer, with the discal cross vein distinctly before middle of discoidal cell, and if wings are darkly infuscated basally or with well-defined spot-like infuscations the discal vein is before middle of discoidal cell, or if discal cross vein is at about middle antennal joint 1 is not incrassate; head with the pubescence, though dense and shaggy, without any or with much shorter, fewer, and less conspicuous bristles on antennal joint 1 below, such bristles not very much longer than the joint, with fewer and usually shorter bristles on face and genae and without a conspicuous brush or tuft of numerous long bristles on lower parts of genae, with antennal joint 1 more slender, less thickened, and not barrel-shaped, and if tending to be stoutish without long and conspicuous bristles below, with joint 3 distinctly thicker and more rod-shaped; general pubescence on front part of body usually shorter, finer, and less shaggy, that on abdomen appearing finer, more erect, and characteristically puff-like or bottle brush-like, that in squamal fringe shorter, finer, and without stoutish or stiffer bristly elements; scutellum predominantly red or reddish or with much red; pulvilli very much reduced, minute, vestigial, or scarcely visible, even absent in both sexes and, where visible, they are confined to base and not reaching the middle of claws in both sexes, with the claws usually more slender, usually less curved, and even sub-straight . . . . . 67.

67. (78) Head normally broad, distinctly narrower than broadest part of thorax, with the facial region narrower and normally broad, with the interocular space in ♀♀ much narrower and less than 4 times as broad as ocellar tubercle, with antennal joint 3 not club-shaped but more rod-like or only gradually tapering apically; pulvilli vestigial, very minute, almost invisible, and confined to extreme base of claws in both sexes; wings less distinctly tinged yellowish or brownish in basal half in ♂♂, and if very distinctly tinged, head at least is not remarkably broad, with the costal cell and base in ♂♂ usually faintly tinged subopaquely pale reddish yellowish or reddish brownish, with the spot-like infuscations sometimes wanting, and if indicated are less evident and practically only present at base of third longitudinal vein, on apical cross veins of basal cells, and at base of vein between submarginal cells, rarely, and then only very indistinctly, on other veins, with the discal cross vein, though also before middle, nearer middle of discoidal cell, and if not the spots are incon-

spicuous and fewer; pubescence on front part of body denser and distinctly longer, that on thorax much longer, denser, and more erect, denser on disc, that on face and genae longer and more bushy, the bristly elements longer, more conspicuous, and more numerous, that on pleurae slightly longer and more shaggy, that on abdomen distinctly longer, denser, and finer, erect and bottle brush-like in appearance, the hair entirely white on abdomen, or when dark chocolate brownish ones are present they are mostly confined to apical part of abdomen and tergites 5–7, in species with brown hair, not entirely white haired, with all the bristles on abdomen in ♀♀ not dark, and if so the pubescence at apex of abdomen is also dark, with fulvous brownish tufts of hair if present differently arranged or confined to last few tergites and with the transverse bristles across tergites 2–4 not all dark or black, and if so in some ♀♀ other characters do not conform; hypopygium of ♂♂ with the beaked apical joints more elongate . . . . . 68.

68. (73) Species with much yellowish brown, fulvous brown to chocolate brown hair on thorax, scutellum, or transversely on some abdominal segments in addition to frosty white hair, with the bristly hairs and bristles on head above, occiput, thorax, mesopleuron, and transversely across some segments of abdomen and venter ranging from yellowish, through yellowish brown to reddish brown and chocolate brown, the darker ones or dark-tipped ones usually on scutellum and abdomen; wings always tinged pale reddish yellow to pale reddish brown in costal and basal parts, even if only very slightly, with the rest also more often faintly tinged reddish, not markedly milky whitish, with at least a more distinct darker infuscation at fork of second longitudinal vein, on apical cross vein of second basal cell and on discal cross vein, and sometimes also at base of second submarginal cell, at base of vein between discoidal and third posterior cells and even very feebly on apical cross vein of discoidal cell, with the basal comb always dark blackish brown or even black spined . . . . . 69.

69. (70) Pubescence on body with the hair on disc of thorax, viewed from above, chocolate brown in some ♂♂ to greyish brown in ♂♂ and ♀♀, when viewed from side, extensively brownish golden, golden to pale reddish golden, that on scutellum even deeper brownish golden to fulvous brown, that on head above pale yellowish brown to brownish, with deep golden brownish hair on abdominal segment 1, with more chocolate brownish hair at the apex of abdomen in ♂♂ and segments 5 and 6 and apex in ♀♀, the rest of hair snow white, with that on pectus in ♂♂ also brownish yellow, and that in metapleural tuft tinted yellowish, with the bristles on frons, thorax, and mesopleuron yellowish brown, reddish brown to brownish, and those on dark-haired segments of abdomen with more than their apical halves chocolate brown, with those on rest of abdomen white, those on coxae yellowish to brownish; wings tinged reddish or yellowish brown only in costal cell and base, with only 3 darker infuscations in basal half, with the discal cross vein much before middle of discoidal cell; interocular space in ♂♂ broader than tubercle, in ♀♀ just about 3, or a very little more, times as broad as tubercle; antennal joint 1 shorter, especially in ♂♂, and with the apical part of joint 3 less slender;

femora less extensively blackened, especially front and middle ones; hypopygium of ♂ (text-fig. 73) with the inner apical angle of basal parts in neck region slightly more prominently projecting and without a slightly ledge-like ventral aedeagal process

♂ ♀ *peringueyi* Bezz. (p. 275).

70. (69) Pubescence on disc of thorax in both sexes predominantly white, without any, or with only very few, yellowish hairs, usually entirely white, that on scutellum paler, more straw-coloured yellowish to golden, with usually brownish-tipped hairs on segments 4, 5, and apex of abdomen in ♀♀ in addition to those on segment 1 above and below, with the rest of the hair frosty white, with that on pleurae, pectus, and in metapleural tuft in both sexes white like rest of hair on head in front and below, with the bristles on frons, thorax, and mesopleuron usually paler, more yellowish, and, when darker, rest of hair on thorax is entirely white, with the bristles on scutellum also more yellowish, with yellowish-based dark brownish or chocolate brown, stout bristles transversely on all the abdominal segments from 2, more so in ♀♀, without any entirely white bristles even in ♂♂, those on coxae being entirely white or whitish in both sexes; wings either more feebly tinged yellowish in costal and basal parts in ♀♀, or distinctly more extensively tinged brownish in basal halves as in some ♂♂, with usually, in addition to the 3 darker infuscations, also with a distinct infuscation at base of second submarginal cell, often also at base of vein between discoidal and third posterior cells and even very faintly on apical cross vein of discoidal cell in some specimens, with the discal cross vein at about middle, or immediately before middle, or even just beyond middle, of discoidal cell; interocular space in ♂♂ narrower, as broad as tubercle, in ♀♀ slightly broader, about 3–3½ times as broad as tubercle, antennal joint 1 slightly proportionally longer, distinctly more so in ♂♂, and with the apical part of 3 slightly more slender and attenuated; femora, including front and middle ones, more extensively blackened to very much beyond middle; hypopygium of ♂♂ (text-fig. 74) with the inner apical angle of basal parts slightly less prominent and without a distinct ledge-like ventral aedeagal process

71.

71. (72) Wings distinctly more subopaquely yellowish, more distinctly tinged reddish brown in basal part up to end of costal cell and across middle of first posterior cell to apex of anal cell in ♂, with the infuscations on cross veins and veins more distinct, with the second longitudinal vein more bent upwards at end; bristly hairs and bristles on head above and on thorax paler and more yellowish, the hairs on scutellum, tergite 1, and tergites 4 and 5 slightly paler and more yellowish; abdomen in ♂ with distinct red on sides and venter also pale yellowish red, and scutellum more extensively red; proboscis longer, about 3–4 mm. long and antennal joint 3 less rod-shaped . . . ♂ ♀ *nigripecten* Bezz. (p. 277).

72. (71) Wings on the whole clearer and more greyish hyaline, in both sexes only slightly more subopaquely cinereous brownish or yellowish in basal and costal part, with the infuscations on cross veins less conspicuous, with the second longitudinal vein less bent upwards at its end; bristly hairs and bristles on head above and on thorax deeper yellowish to

brownish, the hairs on scutellum, tergite 1, and sides of tergites 4 and 5 darker and more chocolate brownish; abdomen in ♂♂ entirely black, and scutellum more obscurely reddish on disc; proboscis shorter, about 2–2½ mm. long, and antennal joint 3 more slender and more rod-like
♂ ♀ *nigripecten* var. *cinctutus* n. (p. 279).

73. (68) Entirely or predominantly frosty white or snow white haired species, with only the bristly hairs on ocellar tubercle and frons yellowish or brownish in ♂♂, or if some brownish hairs are present, they are found only towards apex of abdomen, all the other hair above and below being entirely white, with all the bristles on body, even in forms with slight brownish hair on abdomen, entirely white or at least without any black or dark bristles on abdomen even if pale yellowish ones are present on thorax; wings entirely hyaline, with a distinct subopaquely milky whitish tint, the costal cell and base being more subopaquely whitish, with the infuscations at fork of second longitudinal vein, on discal cross vein, and on apical cross vein of second basal cell practically only represented as blackened parts of the veins, thus feebler, with the other spots not developed or, if slightly indicated at base of vein between submarginal cells and at base of vein between discoidal and third posterior cells, the wings are at least milky whitish, with the basal comb entirely white, whitish, or very pale yellowish . . . . . 74.

74. (75) Pubescence and bristles on entire body, excluding only the yellowish or brownish hairs on ocellar tubercle and frons, frosty or snow white; wings usually with only distinct blackish infuscations along discal cross vein, apical cross vein of second basal cell and at base (fork) of third longitudinal vein, with the basal comb entirely frosty white; sides of abdomen, or even venter, in both sexes more black
♂ ♀ *molitor* Wied. (p. 280).
(Syn. = *argentifer* Walk.)

75. (74) Pubescence and bristles on body not entirely frosty white, with the bristles on thorax and scutellum yellowish or even with distinct pale brownish or chocolate brownish hairs, which are pale yellowish at their bases on abdominal segments 4–7; wings with the same 3 infuscations but also with slight, but distinct, infuscations at base of vein separating submarginal cells and at base of vein between discoidal and third posterior cells, with the basal comb more creamy or more yellowish; sides of abdomen, especially towards apex and on venter often more reddish
76.

76. (77) Pubescence with the bristles on thorax and abdomen entirely white, with the hairs transversely on abdominal segments 4–7 in ♀ pale brownish or chocolate brownish, but with yellowish bases; wings with the 3 infuscations, in basal half, more diffuse and more confined to veins alone, with the discal cross vein at about middle of discoidal cell, the discoidal cell being truncate apically; sides of abdomen even in ♀ more distinctly reddish . . . . . ♂ ♀ *molitor* Wied. (p. 282).
(Western Province var.)

77. (76) Pubescence with the bristles in front of wings and on posterior calli on thorax and on scutellum distinctly yellowish, those on abdomen as well as all the hair entirely white; wings with the 3 infuscations in basal

half confined to the veins, not diffuse, with the discal cross vein distinctly before middle of discoidal cell, and the discoidal cell less broadly truncate apically; sides of abdomen in ♂ at least black

♂ *molitor* Wied. (p. 282).
(S.W. African Form.)

78. (67) Head remarkably broad, quite as broad as, or even broader than, broadest part of thorax, with the facial region in both sexes, but especially in ♀♀, also remarkably broad, with the interocular space in ♀♀ broader and more than 4 times as broad as ocellar tubercle, with antennal joint 3 club-shaped, much thickened in basal half and then rapidly narrowed, the apical half or more being very slender; pulvilli, though short, more distinctly developed and longer, visible at bases of claws in both sexes or even extending to near middle of claws; wings more distinctly sub-opaquely yellowish or yellowish brownish in ♂♂ in basal half from end of costal cell across to end of anal cell, with the spot-like infuscations at base of third longitudinal vein, on apical cross veins of basal cells, at bases of the veins separating discoidal and third posterior and sub-marginal cells, on apical cross vein of discoidal cell, and sometimes even at apex of first posterior cell more evident, distinct, and more conspicuous, with the discal cross vein tending to be much nearer base of discoidal cell; pubescence on front part of body distinctly much shorter, that on thorax much shorter, finer, and more recumbent, sparser on disc, that on face and genae shorter and with more scaly elements, the bristly elements shorter and fewer, that on pleurae shorter, less shaggy, and more woolly in appearance, that on abdomen less dense, shorter, less fine and erect, and less bottle brush-like, the fine pubescence on tergites 5–7 in both sexes, and apical bristles in ♂♂ white, the bristles may be brownish in some ♀♀, but with fulvous brownish or brownish tufts of hairs on sides of tergites 2 and 3, or 2–4, or 3–4, and fulvous or brownish short pubescence discally across some of these medial tergites in some specimens, and with the bristles across tergites 2–4 in both sexes dark or at least yellowish brown; hypopygium of ♂♂ with the beaked apical joints much shorter . . . . . 79.

79. (80) Head with the eyes above in ♂ more narrowly separated by width of ocellar tubercle, the upper facets very coarse, with the interocular space in ♀ very broad and at least 6½ times as broad as ocellar tubercle, with antennal joint 1 slender and longer, about or at least 4 times as long as 2, with joint 3 relatively shorter, with more or less its basal half broadened, the slender apical part being distinctly shorter, with the proboscis only about 4, or less than 6, mm. long; wings more hyaline, with the costal cell and basal part from end of costal cell to apex of anal cell in ♂ at least tinged paler yellowish brown, with the middle parts of cells in non-infuscated part not greyish and without distinct whitish bordering the veins, with the discal cross vein even slightly nearer base of discoidal cell and with the second longitudinal vein more rapidly turned up at its end; pubescence without any distinct or very dark brownish golden short hairs on sides of thorax in front of wings and discally on each side, with the bristles on venter dark, brownish, or blackish brown, with the tuft of fulvous brownish hairs on each side of tergites 2 and 3 in ♂ less

conspicuous; claws with the pulvilli in ♂ longer though not quite reaching middle of claws, in ♀ confined to base; hypopygium of ♂ (text-fig. 76)
♂ ♀ *bezzii* n. sp. (p. 282).
(Syn. = *molitor* Bezz. nec Wied.)

80. (79) Head with the eyes above in ♂ more broadly separated, the space nearly 2 times as broad as tubercle, the upper facets distinctly less coarse, with antennal joint 1 much shorter and only about 2 times as long as 2, with 3 relatively longer, more club-shaped, and less than basal half thickened, the apical slender part thus very much longer, with the proboscis longer, about 6 mm. long; wings in ♂ with the basal part from end of costal cell and across to apex of anal cell darker brownish, becoming more yellowish basally, with the middle of the cells in clearer part more greyish and with a distinct subopaquely whitish border along veins in this part, with the discal cross vein apparently less near base of discoidal cell and with the second longitudinal vein less rapidly turned up at its end; pubescence with distinct fulvous brown or brownish golden short hairs on sides of thorax in front of wings and discally on each side, with the bristles on venter whitish, with the tuft of fulvous brownish hairs on sides of abdomen more conspicuous, and bristly hairs on ocellar tubercle and base of frons darker; claws with the pulvilli very short and confined to base of claws in ♂; hypopygium (text-fig. 77)
♂ *anastoechoides* n. sp. (p. 286).

GROUP I.

Section 1.

B. lateralis F.

(Wiedemann, p. 337, Aussereurop. Zweifl. Ins. i, Table IV., fig. 5; Loew, p. 182, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 8, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species is very easily recognised and is also one of the most striking South African species. Its chief characters are:—

Body, including scutellum, predominantly black; head below and face sometimes brownish; pleurae usually dark reddish brown or with reddish brown infusions; legs with the femora black, with the tibiae and greater part of tarsi yellowish brown or yellowish, the apical parts of tarsi blackish; pubescence fairly dense, that on sides of abdomen markedly dense and tuft-like, that on first antennal joints, face, head below, sides of thorax, pectus and on venter also fairly long and denser than on thorax and abdomen discally, the pubescence predominantly dark or black, even the black hair, however, with a brownish, mauvish, or dark rufous tint in certain lights, that on sides of frons towards

apex with gleaming reddish golden intermixed hairs, with intermixed reddish golden hairs on sides of face and genae, and also with burnished reddish golden hairs on sides of first antennal joints, with the shortish bristly hairs lower down on occiput also gleaming rufous or brownish golden in certain lights, the pubescence on pleurae and especially that, very densely, on sides of venter, when viewed obliquely from in front, gleaming rufous to purplish red, that in metapleural tuft with an admixture of much black hair, with intermixed rufous or reddish golden and black bristly hairs on coxae, the longer hairs and bristly hairs or bristles on thorax above, scutellum, abdomen above and on venter black, with the shorter and finer hairs or scale-like hairs on thorax above, sides of thorax and on scutellum fulvous or reddish to brownish golden in certain lights, with a patch or tuft of hair-like scaling on each side of frons anteriorly, a broad patch on each side of head behind eyes in line with a fairly broad stripe or band on each side of thorax and extending to the base, contrastingly frosty white and very conspicuous, with the scaling on abdomen above depressed and in form of a conspicuous broadish transverse band of frosty white or cretaceous white scaling across the apical part of tergite 2 and basal part of tergite 3, and with the rest of the scaling on abdomen above dark but dirty yellowish or dull ochreous yellowish in certain lights especially in apical half of abdomen, with the scaling on femora dark but with a dull greyish or greasy sheen in certain lights, that on tibiae paler and more whitish; wings as depicted by Wiedemann (Table IV., fig. 5, loc. cit.), with the front half up to end of marginal cell and including alula very dark blackish brown to sooty black, the posterior half hyaline to greyish hyaline but with black spots, the spots arranged as follows: a large one on apical cross vein of second basal cell, another large one on discal cross vein, a fairly large one at base of second submarginal cell, and smaller ones at apex of first posterior cell, on apical cross vein of discoidal cell and at base of third posterior cell, and also with a distinct spot-like darker infuscation in apical part of second basal cell (this latter spot and the large one on apical cross vein of second basal cell with a pale spot between them), with the hyaline hinder part of wing sometimes showing darkish infusions in the cells, with the veins black or very dark brownish, with the discal cross vein much beyond middle of discoidal cell, with the second longitudinal vein very rapidly bent or curved hook-like upwards at end, with the basal comb black, with the fringe of the alula gleaming sericeous whitish to yellowish, with the squamae opaquely very dark blackish brown to black and also fringed with pale sericeous

whitish or yellowish hairs; halteres very dark or blackish and with blackish knobs. *Head* with the eyes not visibly sinuate along hind margins, contiguous above in ♂♂ for a short distance about equal to, or a little longer than, length of ocellar tubercle, the interocular space in ♀♀ on vertex about 3½, to nearly 4, times as broad as tubercle; antennae with joint 1 about 2½–3 times as long as 2, that of ♂♂ being usually only about 2½ times, with joint 2 longer than broad, with 3 in ♂♂ almost 1½ times as long as 1 and 2 combined, in ♀♀ slightly shorter, almost rod-like, but slightly thicker just before middle or nearer base, ending apically in a distinct conical joint-like basal element, a second short joint-like element, and a terminal style; proboscis rather stoutish, very finely spinulate below, about 3–4½ mm. long; palps short and thick. *Abdomen* rather dorso-ventrally flattened and broad, ovate, with the transverse bristles slender. *Legs* with bristly hairs on femora below, more developed in ♂♂; middle femora with about 2–4 spines in apical half in front and 1 or 2 behind; hind femora with about 5–10 spines from near base to apex below and with some spines on outer side apically, with all these spines grooved; claws slender, somewhat compressed, rather long, very much curved downwards apically, with the pulvilli well developed and broad. *Hypopygium* of ♂ (text-fig. 2. Side view (*a*), ventral view (*b*), and dorsal view (*c*)) with somewhat sparse, but longish, bristly hairs on dorsum of basal parts (Ba.Pt.), with the inner apical angles (I.Ap.A.) of basal parts projecting prominently apically and provided along their dorsal margins with a row of fine, spine-like bristles; beaked apical joints (Ap.Jt.) more or less triquetrous, the sides dorsally more carinate, the inner side provided dorsally with a tuft or crest of spine-like hairs, longer than the other hairs on the dorsum, with the beak or apical part acute and slightly curved outwards; aedeagus (Ae.) with a long slender and straight apical part, nearly reaching the bases of beaked apical joints, with the base broad, bell-shaped, and with the basally directed aedeagal strut on each side dorsal to middle part (M.Pt.) not visibly projecting basally beyond and above lateral struts (L.Str.); middle part (M.Pt.) prominent and knob-like; lateral struts (L.Str.) strap-like, hollowed out below and curved as shown in figure (*b*); basal strut (Ba.Str.) fan-shaped in profile and with its dorsal margin deeply cut out (seen in dotted outline).

Length of body: about 7½–10 mm.

Length of wing: about 9–12 mm.

Locality.—South Western Cape Province to Namaqualand. (In the Imperial Institute, British, Transvaal, and South African Museums.)

B. (*Triplasius*) *bivittatus* Lw.

(P. 181, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 8, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species is apparently an Eastern Province representative of *lateralis*, differing from *lateralis* in having 3 submarginal cells in the wings and more extensive infuscations along the veins and cross veins in the more hyaline part of wings. In other respects this species is very similar to *lateralis*. Loew placed it in a new genus *Triplasius*, but as this new genus does not differ from *Bombylius lateralis*, except in having 3 submarginal cells, there is very little structural evidence in support of *Triplasius* as a separate genus. As these two species of *Bombylius* are to a certain extent peculiar and different from the more typical representatives of the genus, it is more desirable to refer *lateralis* to *Triplasius* as well and thus have them together as was stated by Bezzi. Provisionally *Triplasius* may be considered as a subgenus of *Bombylius*. The undescribed ♂ of *bivittatus* differs from the ♀ in having the eyes contiguous above for a distance about equal to the length of the ocellar tubercle. The *hypopygium* of the ♂ is very similar to that of *lateralis*, but differs in having slightly more numerous, finer and shorter hairs on basal parts above, with the basal processes of basal parts longer, with the inner apical angles in neck region comparatively broader in profile, more rounded and less acute; beaked apical joints apparently narrower and the beak less curved sideways.

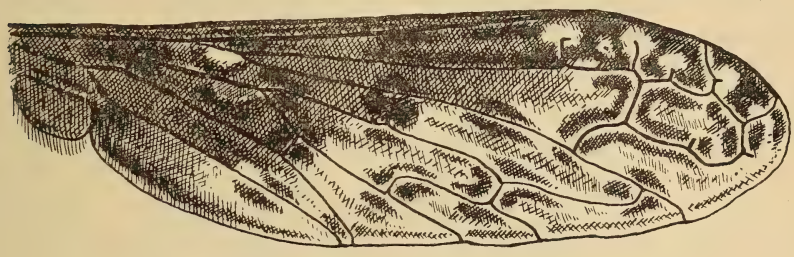
Locality.—Eastern Province. (In the British, Transvaal, and South African Museums.)

1 ♀ *B. namaquensis* n. sp.

This specimen very closely resembles *lateralis* and *bivittatus*, and a comparative description of it is as follows:—

Body also black; pleurae with infusions of dark brownish; legs with the femora also black and the tibiae and greater part of tarsi pale yellowish brown; pubescence on body as in *lateralis*, also predominantly black, but with the fine scale-like hairs on frons, on first antennal joints above and on sides of face whitish, the bristly hairs on lower part of occiput straw-coloured whitish, the fine hair-like scaling on disc of thorax predominantly greyish white, only those in bands along the inner side of white bands rufous or reddish golden, the fine erect, somewhat sparse hairs on thorax above and the bristles on sides in front of wings black as in the other two species, the pubescence on

pleurae distinctly paler than in *lateralis*, straw-coloured, and that on sides of venter also much paler and straw-coloured, not rufous, even that on venter paler, the hairs on coxae composed of black bristly hairs and shorter straw-coloured hairs, with a similar, but distinctly broader, band of dense frosty white hair-like scaling on each side of thorax, in line with a similar patch behind each eye and also a similar tuft on each side of antennae, with the scaling on abdomen above predominantly greyish white, the white on disc thus much more extensive, with numerous intermixed whitish hairs on side of scutellum, with the scaling on femora appearing even a little paler in certain lights than in *lateralis*; wings (text-fig. 5) with a distinctly more



Text-fig. 5.—Wing of *Bombylius namaquensis* n. sp.

marbled or mottled appearance, the anterior part, however, also dark blackish brown, but the posterior part more mottled as shown in figure, darkish infuscations and infusions being present along the course of the veins, with the veins dark blackish brown to black, with 3 submarginal cells indicated, with the second longitudinal vein from beyond middle and opposite end of costal cell with 2 or 3 (3 on right wing) appendices, projecting perpendicularly into marginal cell, the vein itself being irregular and sinuous there, with short stumps on vein separating second and third submarginal cells as well (in the right wing one appendix is even joined on to end of second longitudinal vein, thus cutting off another smaller cell at apex of wing), with the first posterior cell longer and narrower than in *lateralis* or *bivittatus*, with the discal cross vein at about middle, not markedly much beyond middle, of discoidal cell, with the fringe of alula also pale sericeous yellowish, with the squamae opaquely very dark blackish brown but fringed with straw-coloured hairs; halteres and their knobs dark as in the other two species. *Head* with the interocular space quite 4 times as broad as ocellar tubercle; antennae with joint 1 also about 3 times as long as 2, with 3 comparatively shorter than in *lateralis* and much less than 1½ times as long as 1 and 2 combined, otherwise as in the

latter species; proboscis about 4 mm. long. *Legs* with about 4 spines on middle femora in front and 2 behind; hind femora with about 11–13 spines below, the spines themselves slightly stouter than in *lateralis*.

Type in the South African Museum.

Length of body: about 9 mm.

Length of wing: about 11 mm.

Locality.—Namaqualand: Garies (Mus. Exp., June 1930).

The fact that in this species the veins in the apical part of wings are very unstable, giving off appendices and even cutting off separate apical cells and also that, according to Ricardo (p. 89, Ann. Mag. Nat. Hist. (7), vii, 1901), the veinlet forming the supernumerary cell in *bivittatus* is sometimes wanting, is still more evidence in support of Bezzi's contention that the veins in the apical part of the wings in this section of *Bombylius* are unstable and not of generic value.

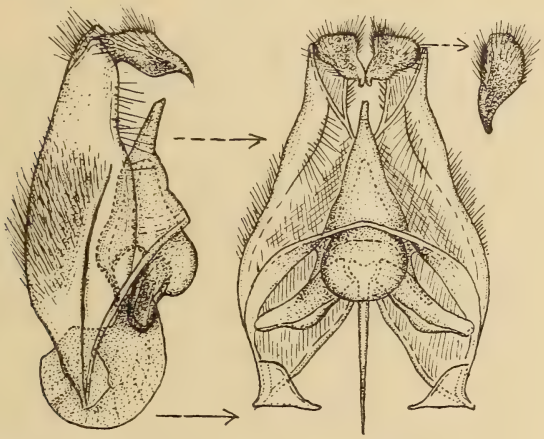
Section 2.

B. bombiformis Bezz.

(P. 34, The Bombyliidae of the Ethiopian Region, fig. 1, 1924.)

This is one of the most strikingly coloured species in this category. It seems to occur only in the northern parts of the Union of South Africa and in the Rhodesias. Bezzi has fully described both the ♂ and the ♀ and has given a drawing of a ♀. The species is characterised by its large size, the predominantly black body and legs, though the scutellum is ferruginous reddish laterally, by the presence of a broad transverse band of orange golden pubescence on abdomen above across tergite 2 and basal part of 3 in both sexes, but apparently slightly broader in ♀♀. Pubescence short on thorax, that on tergite 1 and especially on sides black, that at apical part of abdomen in both sexes white, that on venter black, only that at apex white, that on first antennal joints, face, thorax above and below, on scutellum and legs in ♂♂ entirely black, but with a dark brownish tint in certain lights, that on frons, antennae, face, thorax, front half of pleurae and predominantly on front and middle coxae in ♀♀ predominantly hoary white, appearing greyish, due to black intermixed bristles on occiput, bristly hairs on thorax above, black bristles and macrochaetal bristles, mesopleural bristles, black post-alar bristles, the pubescence and bristles on scutellum and predominantly in metapleural tuft in ♀♀ as well as hair on legs and especially hind ones in ♀♀ also black; metapleurae to a great extent bare and often showing through dark brownish or

brownish; wings greyish hyaline, with the basal part and alula brownish, the alula, however, less brownish and more cinereous, with the basal comb in ♂♂ black, in ♀♀ black-spined but covered above with white pubescence, with the fringe of the alula more or less gleaming pale brownish, the part of fringe near base white in ♀♀ but very dark brown in ♂♂, with the veins brownish to reddish brown, with the discal cross vein beyond middle of discoidal cell and apex of discoidal cell acute or subacute, a short apical cross vein being sometimes present, with the squamae opaquely very dark blackish brown,



Text-fig. 6.—Side and ventral views of hypopygium of ♂ of *Bombylius bombiformis* Bezz.

fringed with white hair in ♀♀ and blackish hair in ♂♂; halteres dark and with very dark brown or blackish brown knobs in both sexes. *Head* with the eyes in ♂♂ in actual contact above for a distance at least as long as ocellar tubercle, separated above on vertex in ♀♀ by a space a little more than 2 times as broad as tubercle; antennae with joint 1 relatively short, only about 1½–2 times as long as 2, with joint 3 thus appearing elongate and more than 2 times as long as 1 and 2 combined, gradually narrowed apically, ending in a conical basal element bearing a short style; proboscis stoutish, about 5–6½ mm. long; palps comparatively short and with some longish, bristle-like hairs on outer lower side. *Legs* with dense shortish hair on femora, more conspicuous in ♂♂, without any spines on front femora; middle femora with 2–8 spines in front and 2–4 behind; hind femora usually with numerous spines, 10–20, below from base to apex on outer side and a few on inner side towards apex. *Hypopygium* of ♂ (text-fig. 6, showing

side and ventral views) with the beaked apical joints triquetrous or triangular; aedeagus short and stumpy and without a ventral process.

Length of body: about 9½–15 mm.

Length of wing: about 13–17 mm.

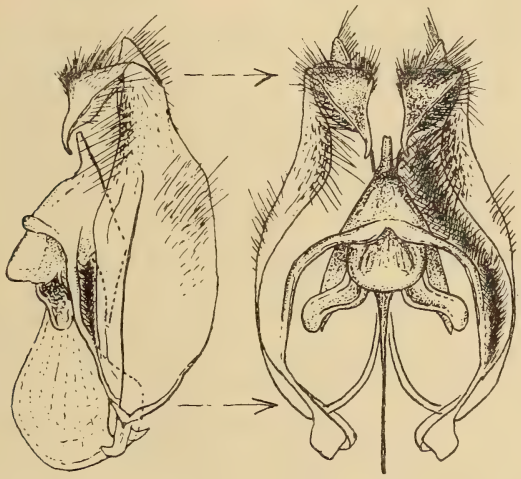
Locality.—North Transvaal, South and North Rhodesia, and Nyasaland. (In the Transvaal and South African Museums.)

B. analis F.

(Loew, p. 183, Dipt. Faun. Südafr. i, 1860; Bezzi, p. 36, The Bombyliidae of the Ethiopian Region, 1924.)

This is one of the most conspicuous and easily recognisable species in the southern Ethiopian Region. The body is usually predominantly black, the scutellum dark ferruginous reddish and even the abdomen and pleurae sometimes appearing dark ferruginous reddish through the pubescence; legs usually entirely dark, but when denuded the tibiae and tarsi are very dark reddish brown; pubescence dense, that on thorax in both sexes short and with a "shorn off" appearance, predominantly sooty black in ♂♂ and with a brownish tint in certain lights, that on abdomen from apex of tergite 3 or from tergite 4 to apex snow white in ♂♂, but sometimes with an orange yellowish tint at bases of these white hairs especially on sides of abdomen below, that on frons, first antennal joints, face, entire thorax above and front half of pleurae in ♀♀ dull whitish, greyish white to ochreous yellowish, that on disc of thorax usually with a slightly more yellowish tint even in ♀♀ with dull whitish pubescence, that on greater part of abdomen and on scutellum in ♀♀ black as in ♂♂, but the pubescence on apical part from tergite 4 to apex, as in ♂♂, snow white but with distinctly more conspicuous or even with entirely orange or reddish orange pubescence ventrally and apically on each side, and sometimes even the entire apical pubescence is yellowish or ochreous yellowish, with the short bristly hairs on ocellar tubercle in some ♀♀, the macrochaetal bristles in front of wings, the post-alar bristles and the erect intermixed hairs towards base of thorax above in all ♀♀ black, and in some forms there are numerous blackish hairs on thorax above, blackish bristles on occiput and with much dark hair and black bristles on pleurae, with the bristly hairs on front and hind coxae and sometimes also on middle ones in ♀♀ predominantly black as in ♂♂, with the metapleural tuft predominantly black; wings greyish hyaline and sometimes with a distinct and faint yellowish tinge, with the base and alula very dark blackish brown to almost black, with the basal comb

entirely black in ♂♂, the spines black in ♀♀, but with much whitish or greyish yellow scaling above in ♀♀, with the fringe of the alula brownish to greyish brown in ♂♂, much paler and more whitish to even snow whitish in ♀♀, with the veins pale reddish yellow to pale brownish yellow in both sexes and thus enhancing the yellowish tinge of wings, with the discal cross much beyond middle of discoidal cell, the short apical cross vein of the latter usually present, with the squamae opaquely almost black, fringed with dark hairs in ♂♂ and pale or even whitish hairs in ♀♀; halteres dark and with dark knobs in both sexes.



Text-fig. 7.—Side and ventral views of hypopygium of ♂ of *Bombylius analis* F.

Head with the eyes above in ♂♂ in actual contact for a distance at least equal in length to ocellar tubercle, separated on vertex in ♀♀ by a space a very little more than 2 times as broad as tubercle; antennae with joint 1 short, only about 1½–2 times as long as 2, with 3 more than 2 times as long as 1 and 2 combined, much broadened basally, more rapidly narrowed from about middle to apex, in some ♂♂ almost club-shaped in profile, in some ♀♀ even narrowed rapidly only near apex, ending apically in a nodular basal element, a second small conical joint, itself passing into a shortish or blunt stylar element; proboscis stoutish, about 6–7 mm. long. *Hypopygium* of ♂ (text-fig. 7) with the basal parts more or less smooth, slightly shagreened above, rugulose on narrow neck region, more so near apical part below, with the inner apical angles or processes projecting bluntly beyond bases of beaked apical joints and with the spine-like bristles along its dorsal

margin stoutish; aedeagus with the apical part not reaching apex of basal parts, the apex narrow and slightly bent downwards; beaked apical joints triquetrous, the edges being carinate and with a crest of dense setae-like spines on inner margin, longer basally, with the rest of the dorsum of the joints above setiferously punctured.

Length of body: about 11–15 mm.

Length of wing: about 14–17 mm.

Locality.—Whole Southern Africa, including South West Africa. (In the Imperial Institute, British, Transvaal, Natal, and South African Museums.)

This common species, contrary to Bezzi's statement, is not constant in the colour of the pubescence on the head, thorax above, and at apex of abdomen. Some ♂♂ have the apical tuft of snow white hairs entirely white, others have reddish or orange yellow developed to a variable extent on sides of this tuft below, and in some the apical tuft is almost predominantly fulvous (*see* below). Some ♀♀ have predominantly whitish to greyish white pubescence on thorax above, and in others again the entire disc of thorax is distinctly more yellow-haired even ochreous tinted. The apical tuft on abdomen may also be distinctly yellowish or with much orange or reddish yellow tinted hairs. One ♂ and two ♀♀ from the Waterberg Dist. (v. Jutrzencka, 1898–99) in the Transvaal even differ so much from the more typical forms that they may be considered as a distinct variety *waterbergensis*:

1 ♂ 2 ♀♀ *B. analis* var. *waterbergensis* n.

From the more typical *analis* this variety differs in having the apical tuft of hair on abdomen entirely orange yellowish in both sexes, in having the whitish pubescence on thorax and upper parts of pleurae in ♀♀ more greyish in appearance due to the presence of intermixed black bristly hairs on occiput and all over the thorax above, the bristles on mesopleuron also predominantly black, the greater part of pleurae not white-haired in front half as in *analis* s.str. but dark, consisting of brownish hairs intermixed with greyish ones, in having the alular and squamal fringes dark or dark brownish in both sexes and not white as in ♀♀ of *analis* s. str.

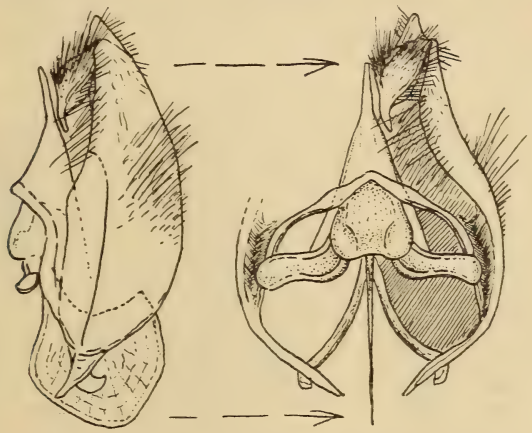
Holotype in the Transvaal Museum, allotype in the South African Museum.

B. haemorrhoidalis Bezz.

(P. 9, Ann. S. Afr. Mus., vol. xviii, 1921.)

This is a very characteristic species, superficially much resembling a large *analis* F. and easily recognised by the predominantly sooty black

pubescence in both sexes, only the apical tuft on abdomen in both sexes is golden orange yellowish. Wings greyish hyaline as in *analis*, the basal comb, the alular, and squamal fringes in both sexes, however, black or dark brownish, with the discoidal cell distinctly acute apically. Moreover, the species is distinctly larger and bulkier, about 16½–17 mm. long and with a wing-length of about 18–19 mm. *Hypo-*



Text-fig. 8.—Side and half of ventral view of hypopygium of ♂ of *Bombylius haemorrhoidalis* Bezz.

pygium of ♂ (text-fig. 8) with the aedeagus not reaching apex of basal parts, the apical part straight and slender.

Locality.—S. Rhodesia. (In the South African Museum.)

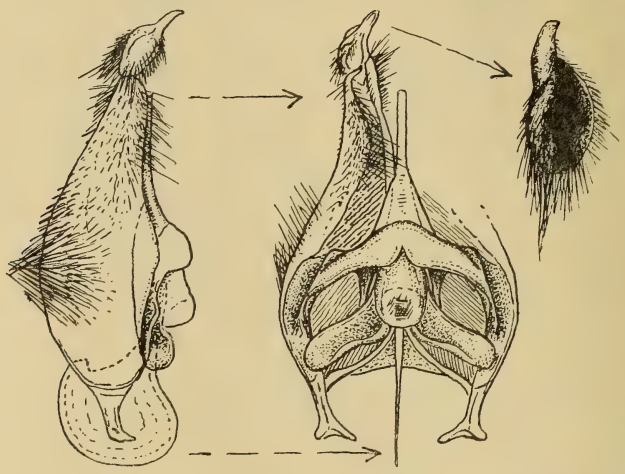
Bezzi (p. 9, loc. cit.) mistook the ♀-specimen from "Salisbury (Jack, 20/3/14)" for a ♂. On p. 33, in his key in the Bombyliidae of the Ethiopian Region, he states that the ♀ has whitish hair on the thorax, but on p. 36 he states that the ♀ is black-haired like the ♂.

B. fulvonotatus Wied.

(P. 332, Aussereurop. Zweifl. Ins., i, 1828.)

This species appears to be fairly common in the South Western and Western parts of the Cape Province, in the Orange Free State, and is also found in the Transvaal. Superficially it very closely resembles *analis* in the general shape of the body and the black pubescence. Both ♂♂ and ♀♀ are, however, at once distinguished from *analis* by the presence of a central row of orange golden or fulvous spots on the abdomen above and the absence of an apical patch or tuft of snow white or extensive yellowish hairs. The pubescence on thorax above

in ♀♀ appears bluish grey due to much intermixed black bristly hairs and bristles, with the hair on first antennal joints and face in ♀♀ also black as in ♂♂, the pubescence on pleurae in ♀♀, but with some spots of silvery scaling on each side of venter, black as in ♂♂; wings as in *analis*, greyish hyaline, with the base and to a certain extent the alula very dark blackish brown, with the basal comb black in both sexes, with the alular and squamal fringes dark, brownish to blackish brown in both sexes, with the veins pale yellowish brown to pale reddish brown,



TEXT-FIG. 9.—Side view and half of ventral view of hypopygium of ♂ of *Bombylius fulvonotatus* Wied.

giving the wings a faint brownish or yellowish tinge, with the apical cross vein of discoidal cell on the whole distinctly longer than in *analis*, the cell thus more truncate apically; halteres and their knobs dark in both sexes; head much as in *analis* and the antennal joints also very similar, but with the proboscis on the average longer even reaching 9 mm. in length in some specimens. *Hypopygium* of ♂ (text-fig. 9) differs in many respects from that of *analis*, with a large patch of setae on dorsum of basal parts and with long setae on outer ventral aspect of neck region and along ventral margin to about the middle, with the inner apical angles in neck region not projecting beyond bases of beaked apical joints, provided along their dorsal edges with about 13–14 stouter spine-like setae; beaked apical joints also more or less triquetrous, hollowed out basally below, the edges sharply carinate, the dorsal edge slightly broader and provided with a feeble crest of spines, with the beak smooth, comparatively broad, not very sharply

pointed; aedeagus with the apical part elongate, not reaching apices of the inner apical angles of basal parts; lateral struts short and broad; basal strut fan-shaped.

In the Imperial Institute, the Transvaal and South African Museums.

2 ♂♂ *B. vansoni* Hesse.

(P. 161, Ann. Trans. Mus., vol. xvii, 1936.)

Black; integument of body above, anteriorly below on propleurae and venter with a dark bluish submetallic sheen; legs shining black; the hair on body and spines on legs velvety black; the hairs towards apex of abdomen from about segment 4 with whitish apices, only sparsely so on segment 4; a spot of scale-like hairs at base of basal comb of wings, five rounded spots of dense, scale-like hairs along mid-dorsal line of abdomen above (one each on segments 2–6 on their apical halves) and laterally below, on each side, four contiguous spots of denser scale-like hairs in a row on segments 2–5 (thus forming an elongate band), golden yellow or fulvous; palps blackish brown; eyes purplish black; pulvilli pallid; wings with the basal parts up to basal cross vein of fourth posterior cell and more or less in anal and axillary cells infuscated dark blackish brown, darker towards the base, the apical halves of anal and axillary cells and apical half of costal cell being only slightly infuscated, very nearly hyaline, with the alula duller, more lamp black, with the translucent spot near apex of second basal cell and beyond base of discoidal cell slightly dull bluish white, with the veins very dark brown, the second longitudinal vein being more brown and the basal parts of the rest of the veins much darker, with the rest of the wings hyaline; halteres dark brown, with the edges of apical cup pallid inside.

Head with the narrow inner margins of the eyes above contiguous at a point just before ocellar tubercle, then gradually diverging to a point about as far forwards from anterior ocellus as length of ocellar tubercle, from there the margins diverge more rapidly; frons with depressed hairs, on each side along margins of eyes, projecting anteriorly as tufts at bases of antennae; face bare medially and the hairs laterally not too dense; antennae with joint 3 about twice as long as 1 and 2 combined, compressed laterally in basal half, broadest basally, thence gradually narrowed to near apex, the apical third being still less narrowed, nearly parallel and slender, with the style short and slender, with joint 2 longer than broad; proboscis about 4½ mm. long, straight; palps with the hairs short.

Thorax with the anterior part above convex, the apical part being very nearly perpendicularly declivous (as in *analis* F.), with the hair dense, short, and furry as in *analis*, slightly less dense and shorter on disc, but leaving no bare part, with numerous chaetae in front of wing bases, of which a few are longer than the others and at least 2 are very long; mesopleuron with numerous bristles; wings with the second longitudinal vein straight, but less deeply sinuate at end than in *fulvonotatus* Wied. and *analis* F., with base of second submarginal cell much shorter than in the above-mentioned species, with the first posterior cell comparatively more obtuse apically, with the discal cross vein scarcely beyond middle of discoidal cell in type, at about middle in paratype, with the apical cross vein of discoidal cell about as long as discal cross vein and much longer than in *fulvonotatus* and *analis*, with the third posterior cell comparatively much narrower, the apex being much narrower than apex of fourth posterior cell, with the basal vein of second posterior cell meeting base of second submarginal cell nearer fork of third longitudinal vein and not at about middle as in *fulvonotatus*, with the basal comb black; metapleural tuft black.

Abdomen with the hair denser apically, becoming longer and sparser and more bristle-like towards apex and the sides apically, especially on hind margins of segments, dense below on venter.

Legs with the depressed scales on femora and tibiae black and shining; front femora, apart from the slender hairs, with 4 to 7 short spines on lower outer surfaces and 2 to 4 on the inner surfaces below; middle femora with numerous spines below, more or less in two rows, the outer with about 9–10 long and short ones beginning near base and an inner row with about 8–9 shorter spines beginning at about middle; hind femora with numerous spines below from near base to apex, more or less also arranged in two rows; tarsi with the pulvilli shorter than the claws.

Hypopygium as shown in text-fig. 10, and compared with that of *fulvonotatus* (text-fig. 9) it differs in that the basal parts are more compact, the neck region of basal part shorter and less slender, with the beaked apical joint having the beak more acute and more pointed, with the aedeagus broadening more rapidly basally; lateral struts longer and more slender and the posterior aedeagal struts better developed and visible basally; basal strut is also different. Compared with that of *analis* (text-fig. 7) it will be seen that the beak of beaked apical joint is less slender, much shorter, and the apical spines less developed; the aedeagus is more slender and not bent downwards at apex; the lateral struts are longer and narrower, etc.

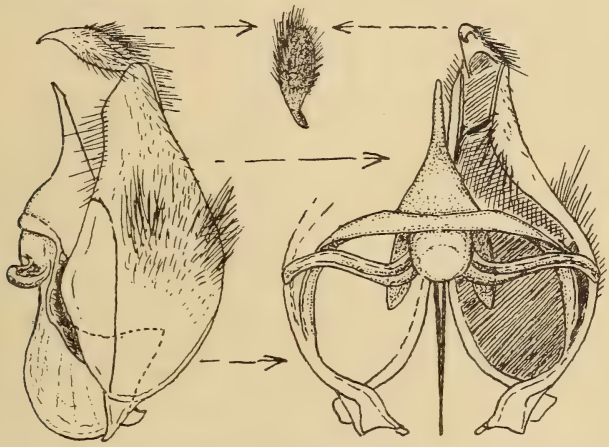
Type in the Transvaal Museum.

Length of body: about 10 mm.

Length of wing: about 10–10½ mm.

Locality.—Gemsbok Pan (Vernay-Lang, Kalahari Exp., 23–4–5/5/30) (Type); Kuke Pan (Vernay-Lang, Kalahari Exp., 21–30/3/30).

This species obviously belongs to the *analis*-section, yet it differs in having the eyes in the ♂ very nearly touching at a point in front of



Text-fig. 10.—Side and ventral views of hypopygium of ♂ of *Bombylius vansoni* Hesse.

ocellar tubercle and the margins of the eyes from thence not parallel. It is related to *analis* F. and *fulvonotatus* Wied., from both of which it differs, apart from the differences in wing-venation already mentioned, in not having the eyes contiguous above and in having the black basal infuscation on the wings more extensive and not sharply demarcated along bases of second basal and anal cells. From *analis* it differs in having fulvous spots on the abdomen and no white tuft of hair at apex; the front femora have short spines, etc. From *fulvonotatus* it differs in being smaller, in having fulvous spots laterally on abdomen below, a fulvous spot at base of wing comb, etc.

B. hypoxanthus Lw.

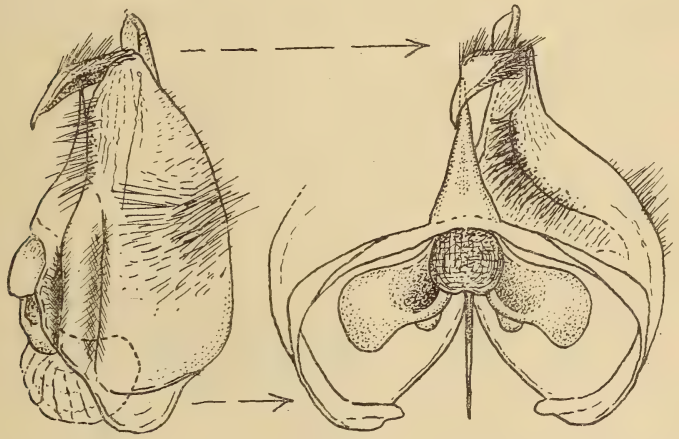
(P. 12, Wien. Ent. Monat., vii, 1863; syn. = *plagiatus* Bezz., p. 469, Ann. S. Afr. Mus., vol. xviii, 1921.)

From Bezzi's description of the ♀ of *plagiatus* it is evident that he had the same species as that of Loew before him, and there is no doubt

that *plagiatus* Bezz. is a synonym of *hypoxanthus* Lw. The ♀ type of *plagiatus* Bezz. is not in the South African Museum, but another ♀ in the collection from the Eastern Province agrees in every respect with Bezzi's description and also with that of Loew.

The species is briefly characterised as follows: *Body*, including scutellum and legs, black, the tibiae and tarsi, when denuded, however, very dark reddish brown; pubescence dense but on the whole shortish, that on thorax above with a cropped-off appearance especially in the ♂ (as yet undescribed), predominantly white on body, that in a tuft on each side of thorax in front of wings and in 3 longitudinal bands on thorax in front (the greater part of disc being bare towards base), that on ocellar tubercle, that to a large extent on scutellum, that on sides of abdomen, more or less in tufts and the macrochaetal bristles, post-alar bristles, scutellar bristles, and transverse bristles on abdomen (where not denuded) black, the bristles towards apex of abdomen whitish apically, with the white hair-like scaling, apart from white pubescence on thorax, head, and pleurae, more or less arranged as 2 spots basally on thorax in front of scutellum, as a large patch basally on each side of tergites 2 and 3, as a conspicuous elongate patch on each side of tergites 2 and 3 (on ventral aspect), as a small central patch apically on tergite 2, a larger one discally and also centrally at apex of tergite 3, and then a broad transverse patch on tergites 4–5 and to a certain extent on 6, with the finer scaling on rest of abdomen above in ♀♀ at least dark or blackish, gleaming graphite-like, with the pubescence on venter in both sexes gleaming golden or fulvous yellowish, and with the pubescence on coxae in both sexes also fulvous or gleaming golden yellowish, with the scaling on femora dark and gleaming greasy brownish in certain lights; wings hyaline but with the base, basal halves of marginal and first submarginal cells, and slightly more than apical half of first basal cell, and a fainter infusion along apical veins of second basal cell and down vein between fourth posterior and anal cells brownish or brown, the costal cell, basal half of first basal cell, and upper basal parts of second basal cell subopaquely yellowish (the yellow thus separating the brown infuscations), with the alula also more cinereous than more hyaline part of wing, with the basal comb black-spined but covered with whitish scaling, with the veins reddish brown, the apical cross veins of first and second basal cells distinctly more darkened and spot-like, with the discal cross vein very much beyond middle of discoidal cell and the latter truncate apically, with the alular fringe and fringe of opaquely dark brownish squamae pale or whitish; halteres dark brownish and with dark

brownish knobs in both sexes. *Head* with the eyes above in ♂ subcontiguous for a short distance, subequal in length to ocellar tubercle, widely separated in ♀♀ by a space quite 3 times as broad as tubercle; antennae with joint 1 short, about 1½ times as long as 2, with 2 longer than broad, with 3 quite 1½ times as long as 1 and 2 combined, laterally compressed, broadest a little before base, then gradually narrowed apically, ending apically in a short basal joint-like element and a second more conical joint which itself ends in a styler element; proboscis about 4–5⅓ mm. long. *Legs* without any visible spines on



Text-fig. 11.—Side and ventral views of hypopygium of ♂ of *Bombylius hypoxanthus* Lw. (=*plagiatus* Bezz.).

front femora below; middle ones with about 8–11 spines in front and 5–6 (usually small ones) behind; hind femora with about 15–17 spines from base to apex below. *Hypopygium* of ♂ (text-fig. 11) with the neck region of basal parts not slender, short, and with the inner apical angles projecting prominently, without a row of distinct spines above, with fewer hairs on dorsum of basal parts than in *acroleucus*; beaked apical joints slightly thicker and more triquetrous basally, with the apex more acute and longer; aedeagus with a more slender apical part, extending almost to level of base of apical joints, straighter; lateral struts broad, but shorter than in *acroleucus*.

Length of body: about 8–11 mm.

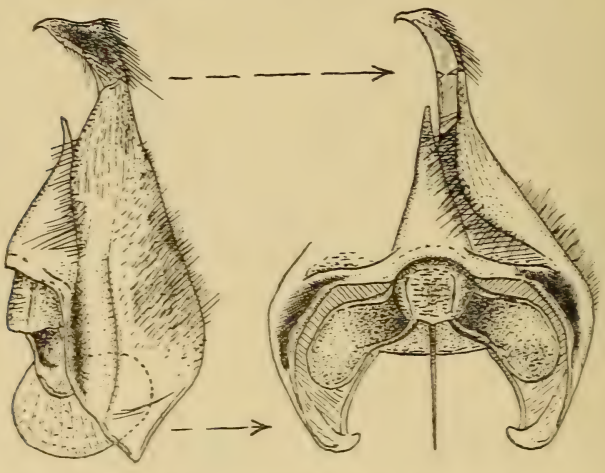
Length of wing: about 9½–12 mm.

Locality.—Eastern Cape Province, O.F.S., and Transvaal. (In the Transvaal and South African Museums.)

B. acroleucus Bezz.

(P. 9, Ann. S. Afr. Mus., vol. xviii, 1921.)

Bezzi based his description of this species on a somewhat denuded ♀ in the South African Museum. With a series of ♂♂ and ♀♀ before me I am able to supplement Bezzi's description. Superficially this species resembles *hypoxanthus* Lw. in having an entirely black body, scutellum, and legs, in having predominantly white pubescence on the body which is practically distributed in the same way, that on abdomen arranged in the same way: a large patch on each side of tergites 2 and 3 basally, a very large elongated patch on tergites 2 and 3 on



TEXT-FIG. 12.—Side view and left ventral view of basal parts and ventral view of genital armature of ♂ of *Bombylius acroleucus* Bezz.

ventral side, a central row of spots apically on tergites 2–4, and also a patch on each side nearer middle on tergites 4 and 5: black bristles distributed in the same way, those towards apex of abdomen as in *hypoxanthus* with their apical parts also whitish, with the pubescence on venter also fulvous, but the coxal bristles and hairs whitish and not deep fulvous or golden; wings predominantly glassy hyaline and with only the extreme base dark brownish and the costal cell and first basal cell subopaquely yellowish, with the alula greyish hyaline, with the veins distinctly much darker and more blackish brown than in *hypoxanthus*, with the discal cross vein much nearer middle of discoidal cell, the dark brownish opaque squamae also white-fringed; halteres also dark and with dark knobs in both sexes. *Head* with the

eyes above in ♂♂ (as yet undescribed) in actual contact for a distance subequal to length of ocellar tubercle, separated in ♀♀ by a space about 3 times as broad as tubercle: antennae with joint 1 short, about 2 times as long as 2, with 2 slightly longer than broad, with 3 more than 2 times as long as 1 and 2 combined, broadened basally, more rapidly narrowed apically in ♂♂, with the terminal elements as in *hypoxanthus*; proboscis about 5–6 mm. long. *Legs* sometimes with 1 or 2 small spines on outer side of front femora; middle ones with about 8–10 irregularly arranged spines on front side and about 4–6 behind; hind femora with about 12–22 spines below from base to apex and arranged more or less in two irregular rows. *Hypopygium* of ♂ (text-fig. 12) with the base of basal parts broad, the neck region comparatively slender and narrow, the inner apical angles blunt, scarcely projecting, with short dense bristly hairs on dorsum and no distinct apical spines; beaked apical joints more or less flattened, the dorsal edges slightly carinate, the basal half above of inner edges with longish and dense hairs, denser than those at base, with the apex acute, slightly curved downwards; aedeagus falling far short of inner apical angles, the apical half slightly directed downwards; lateral struts very broad, their apices being very broad, flattened, and rounded.

Length of body: about 8½–11 mm.

Length of wing: about 9½–12 mm.

Locality.—Karoo: Van Wyk's Vlei, Cradock, Murraysburg, Middelburg, Graaff-Reinet, and Willowmore; Namaqualand: Bowesdorp. (In the Imperial Institute, Transvaal and South African Museums.)

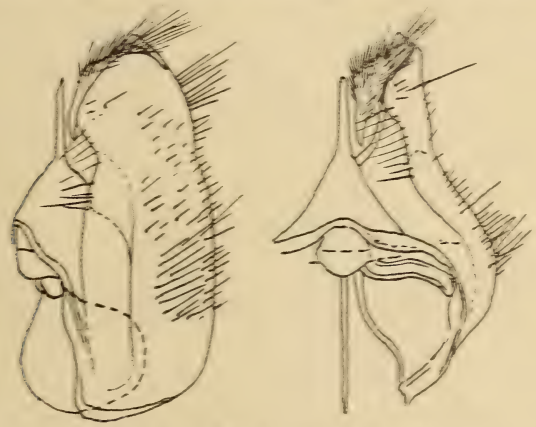
Section 3.

4 ♂♂ *B. arnoldi* n. sp.

Body, including scutellum, black; pleurae, where denuded, showing through brownish to dark blackish brown; legs predominantly black, but with the tibiae, when denuded, very dark reddish brown or blackish brown and the basal parts of tarsi also obscurely very dark reddish brown; pubescence on the whole dense, but shortish, that on abdomen slightly longer than on thorax, that on face dense, but distinctly shorter than in the *ornatus*-series, more like that of *acroleucus* and *hypoxanthus*, that on thorax above, though shortish, not with a cropped-off appearance as in the *analis*-series, that on face, sides of face, on first antennal joints below, in a scaly tuft on each side of frons, that on occiput, thorax in front above, and also along sides above

wings, very sparsely on disc, that at base of thorax, that in a conspicuous tuft behind wing-bases on each side (upper part of metapleural tuft), and that on abdomen above, more distinct towards apex, white, appearing hoary or greyish white in certain lights, that on face more distinctly gleaming sericeous or silvery whitish, with the dense scaling behind eyes, a patch of more elongate scaling on each side at base of tergite 2, a smaller and more indistinct patch on each side at base of tergite 3 and a central row of sparse scales, aggregated posteriorly into distinct round patches on tergites 5–7, gleaming silvery white, with the pubescence on head below sparse and whitish, that on pleural parts and on coxae dull brownish or coffee brownish but sometimes with a dull greyish brown shade in certain lights, that in lower part of metapleural tuft, that on sides of abdomen more or less in basal half, and that on sides of venter to apex much darker, very dark blackish brown to black, but having a distinct blackish brown tint in certain lights, that on venter predominantly also very dark brownish to blackish brown, but with some pale intermixed hairs or even sparse tuft-like whitish hairs in basal half, with the bases of individual hairs on abdomen above dark blackish brown and those towards base and on sides basally with only the extreme tips pale or whitish and those discally towards apex of abdomen almost or entirely whitish, with the bristly hairs on ocellar tubercle, those on each side anteriorly on frons and the finer ones on first antennal joints above blackish brown to black, the macrochaetal bristles in front of wings, the post-alar bristles, and scutellar bristles black, the shortish hair on femora below also very dark or blackish, with the scaling on legs dark but gleaming greasily greyish brown or graphite-like in certain lights; wings vitreous hyaline, iridescent, with the base very dark brownish to dark blackish brown, the alula more greyish cinereous, with the basal comb very dark blackish brown to black, with the veins yellowish brown, the costal veins and those in apical part usually darker brownish and those at extreme base in dark basal part also dark brownish, with the second longitudinal vein undulating, with the discal cross being only very slightly beyond middle of discoidal cell, appearing almost at middle, with the discoidal cell itself subacute or even acute apically, with the alular fringe dark and brownish, with the squamae very dark opaquely blackish brown, but fringed with conspicuous and contrasting almost silvery white hairs; halteres very dark blackish brown, with dark knobs. *Head* with the eyes above in contact for a distance at least $1\frac{1}{2}$ times as long as ocellar tubercle; frons with the central groove, vanishing anteriorly; antennae with

joint 1 short, about 2 times as long as 2, with 3 a little longer than 2 times as long as 1 and 2 combined, laterally compressed and in profile gradually narrowed apically, broadest near base, the apical part slender, ending apically in a conical basal element bearing a short style; proboscis about 4–5 mm. long, but even reaching a length of 7 mm. in one specimen, very finely spinulated below; palps short, stoutish, and with longish black hairs on sides. *Legs* without any spines on front femora below; middle ones with about 1 or 2 shortish spines in front; hind ones with about 10–11 spines from near base to



Text-fig. 13.—Side view and half of ventral view of hypopygium of ♂ of *Bombylius arnoldi* n. sp.

apex of which 5 or 6 are more concentrated near apex; claws with their apices rather rapidly bent downwards. *Hypopygium* (text-fig. 13) with the inner apical angles or processes in neck region of basal parts only slightly projecting apically, with longish bristly hairs along its upper margin, with the lower margin of basal parts in neck region arcuately delated or broadened; beaked apical joints more or less dorso-ventrally compressed, the edges carinate, the inner edge with a dense row of backwardly directed spines, the apex acute; aedeagus with the apical part nearly reaching the apices of basal parts, slender and straight, the aedeagal part not visibly produced basally on each side above the middle part; basal strut scarcely projecting beyond bases of basal parts.

Type in the Rhodesian Museum, paratypes in the Transvaal and South African Museums.

Length of body: about 8½–9 mm.

Length of wing: about 8–9 mm.

Locality.—S. Rhodesia: Sawmills (Rhod. Mus. 12/12/26) (Type); Sawmills (Stevenson, 10/12/26).

This is an interesting species in that without doubt it belongs to the *ornatus*-section, but it also shows relationships with preceding series, such as *acroleucus* and *hypoxanthus* in the *analis*-section. In certain respects it seems to represent a sort of bridging species. With the *analis*-section it agrees in the short first antennal joints, in the position of the discal cross vein (which itself is thus in between the two sections), and in the spines on hind femora beginning nearer base. With the *ornatus*-section it agrees in having an undulating second longitudinal vein, in having distinct patches of silvery scaling on abdomen, and in the marked dilation of lower margin in neck region of basal parts of hypopygium. The species is named after Dr. G. Arnold, the Director of the Rhodesian Museum, who kindly placed many interesting Bombyliids at my disposal.

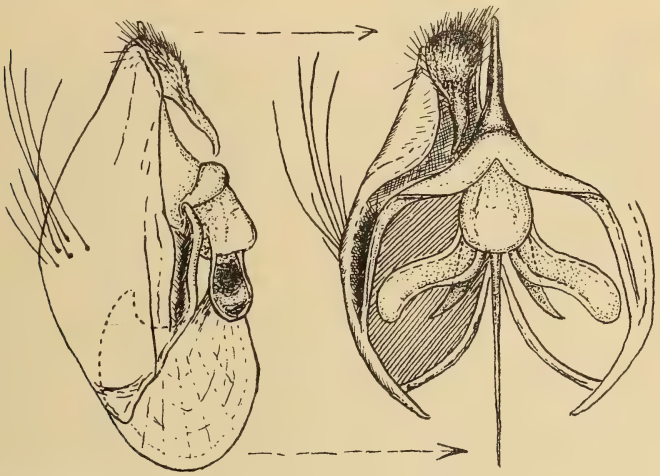
B. delicatus Wied.

(P. 640, Aussereurop. Zweifl. Ins. Nachtr. ii, 1830, and var. *mutilatus* Bezz., p. 10, Ann. S. Afr. Mus., vol. xviii, 1921.)

There seems to be no specific or structural difference between *mutilatus* Bezz. and *delicatus* Wied., except that in *mutilatus* there is no infuscation along the sixth longitudinal vein as in *delicatus*. A long series, however, shows that this band is variable in its extent and intensity, often being distinct as in *delicatus* s.str. (in specimens from Portuguese East Africa, Zululand, Natal, Transvaal, and S.W. Africa), and extending only slightly in certain specimens, which may be considered as intermediate or transitional. It is, however, entirely absent in the var. *mutilatus* (mostly from the Eastern Cape Province, O.F.S., Natal, and even Zululand).

The species is characterised by a type of wing (*see* that of *mutilatus* figured by Bezzi on Pl. I, fig. 1, loc. cit.), the basal dark brownish infuscation of which extends nearly to end of costal cell and then obliquely hindwards to basal third of anal and axillary cells, including also the alula and giving off a spot on discal cross vein and in *delicatus* s. str., the infusion also extends to a variable extent down the vein separating the fourth posterior and anal cells. Across the middle part this dark infuscation is broadly more yellowish and there is a clear spot at base of marginal cell and another near apex of second basal cell; discoidal cell is rather truncate apically, the cross vein being sometimes quite as long as discal cross vein. The pubescence on body

is predominantly black in both sexes, even anteriorly on thorax, with the following spots of brilliantly shining silvery white scaling: a tuft on each side of face, a smaller spot on each side of frons anteriorly, a spot in slight sinuosity on eyes behind, larger in ♀♀, a humeral spot on each side of thorax and in line with them in ♀♀ and some ♂♂, 2 admedian elongated patches in front, a spot on each side in front of wings in both sexes and in ♀♀ and some ♂♂ 2 discal spots more or less in line with them, a spot (often absent or very small) on each side above wings, sometimes a spot on post-alar calli on each side, a larger spot



Text-fig. 14.—Side view and ventral view in part of hypopygium of ♂ *Bombylius delicatus* Wied. (*mutilatus* Bezz.).

on each side at base of thorax in front of scutellum, a central row of large spots at apices of abdominal tergites, conspicuous transverse patches on each side at base of tergites 2–7 in both sexes and also with some silvery gleaming scales on pleurae, with the scaling on legs dark graphite-like, gleaming greyish, or greasy. *Head* with the eyes above in ♂♂ in actual contact for a distance subequal to ocellar tubercle, the interocular space on vertex in ♀♀ a little more than 2 times as broad as tubercle; frons in ♀♀ tending to be shining black; antennae with joint 1 quite 5 times as long as 2, with 3 quite $1\frac{1}{3}$ times as long as 1 and 2 combined, somewhat laterally compressed and tending to be broad and strap-like, ending apically on the outer aspect in a distinct nodular or conical basal element, itself passing into a fine style; proboscis about $3\frac{1}{3}$–4 mm. long. *Legs* slender and with about 4–7 spines in apical half below on hind ones. *Hypopygium* of ♂ (text-fig. 14)

with the basal parts in *mutilatus* having only a few long hairs; aedeagus long, straight, and slender, projecting slightly beyond apices of basal part; beaked apical joints long and slender.

Length of body: about 3½–6½ mm.

Length of wing: about 4½–8 mm.

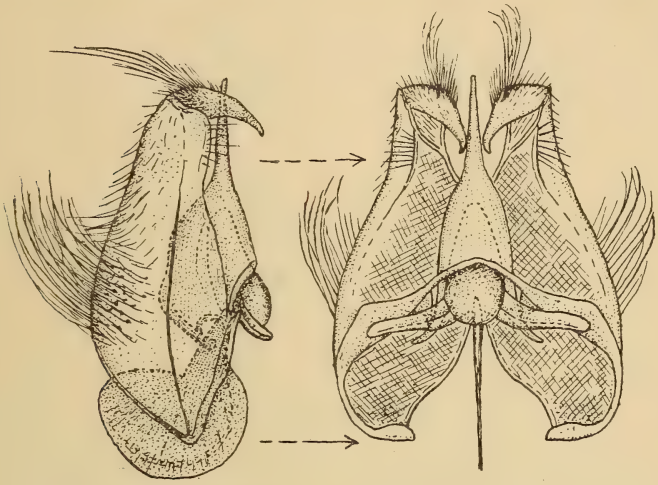
Locality.—Cape Province, O.F.S., Transvaal, Natal, Zululand, Portuguese East Africa, Rhodesia, and South West Africa. (In the Imperial Institute, British, Natal, Albany, Transvaal, and South African Museums.)

B. plorans Bezz.

(P. 39, The Bombyliidae of the Ethiopian Region, 1924.)

This species described, from the Chirinda Forest, by Bezzi is characterised as follows: Entire body, scutellum, and legs black, the tibiae may, however, be more blackish brown or very dark reddish brown; pubescence on head and face rather long and dense, predominantly black, that across front part of thorax greyish to pale greyish brown in ♂♂, gleaming more brownish in ♀♀, that in front of wings in ♀♀ on each side more tuft-like and more conspicuous, that on middle part of pleurae in ♀♀ also gleaming yellowish brown, with only a few sparse greyish or pale greyish brownish ones on pleurae in ♂♂, that on rest of body above entirely black in both sexes, but with a characteristic tuft of pale straw-coloured hairs on each side above halteres and behind base of wings in both sexes, with a small spot of silvery scaling on each side of frons and a larger one on each side of face in both sexes, that in ♀♀ being larger and more conspicuous, with some sparse, almost silvery, scaling across front part of thorax in both sexes, with some silvery scaling on each side of abdomen at bases of tergites 2–5 in both sexes, the spot on tergites 2 and 4 and 5 more conspicuous, the latter two even tuft-like and with very narrow cross bands of silvery scaling on venter; wings more greyish hyaline, iridescent, with the base and alula very dark, almost sooty-black, with the veins black, with the discoidal cell more or less acute or very acute apically, the wings themselves narrowish, with the squamae also black and fringed with entirely black hair; halteres black and with black knobs. *Head* with the eyes in contact above in ♂♂, the interocular space in ♀♀ about 2 times as broad as tubercle; eyes in both sexes with the hind margin slightly sinuate; antennae with joint 3 subequal in length to joints 1 and 2 combined, with 3 rod-like, ending in a style on its outer apical aspect; proboscis about 3½–4 mm. long.

Legs slender and longish; hind femora with about 3–4 spines below in apical half. *Hypopygium* of ♂ (text-fig. 15) with rather longish hairs on dorsum of basal parts, the neck region of basal parts slightly arcuately produced (in profile); beaked apical joints some-



Text-fig. 15.—Side and ventral views of hypopygium of ♂ *Bombylius plorans* Bezz.

what triangular, their upper, inner dorsal edge provided with a tuft of longish hairs; aedeagus slightly projecting beyond apices of basal parts.

Length of body: about 5–6 mm.

Length of wing: about 6–7 mm.

Locality.—S. Rhodesia. (In the Rhodesian and South African Museums, in the Imperial Institute and Rhodesian Agricultural Dept.)

1 ♂ 1 ♀ *B. melanolomus* n. sp.

Body and scutellum entirely black; legs with the femora black, the tibiae scarcely less black, but when denuded with a very dark blackish brown tint; pubescence dense as in other species of the *ornatus* and *plorans* series, that on antennae and face slightly shorter than in *plorans*, that on thorax discally dense and shortish, that on sides of abdomen long, dense, and shaggy as in other species in this series, predominantly black above and below, that on thorax in front on ♂ straw-coloured yellowish to obscure yellowish brownish, that in front on thorax in ♀ almost entirely black, but with a few, scarcely perceptible, gleaming brownish hairs on humeral part and medially in

front, with the shorter bristly hairs lower down on occiput in ♀ distinctly reddish brown or rufous brown in certain lights, with the pubescence on pleurae in both sexes entirely black, but showing very dark blackish brown or purplish tints in certain lights, without any tuft of whitish hairs behind wings, with a small tuft of silvery white scaling on each side of frons anteriorly in both sexes, another larger tuft on each side of face, more conspicuous in ♀, a few silvery scales in sinuosity behind eyes, especially in ♀, with a few silvery scales near humeral part on each side and 2 admedian spots of very sparse silvery scaling in line with them in ♀, but with only very sparse and feeble scattered pale scales across middle of thorax in front in ♂, with some silvery scaling apically and medially on abdomen above in both sexes, a small patch of silvery scaling on each side basally of tergite 2 and a few silvery scales laterally on hind margins of tergites 3–5 in ♀, without any visible silvery scaling on venter in both sexes, with the fine depressed dark scaling on abdomen above in ♀ at least glittering and gleaming whitish or silvery in certain lights, with the dark scaling on femora graphite-like, gleaming greyish, or greasy in certain lights; wings glassy hyaline, with the base and alula very dark blackish brown or black, with the veins very dark brown, almost black in ♀, with the apical part of discoidal cell subacute, a very short cross vein being present, with the squamae black and the fringe entirely black; halteres blackish and with blackish knobs. *Head* with the eyes in ♂ in contact above for a short distance a little shorter than ocellar tubercle, the interocular space in ♀ about 2 times as broad as tubercle on vertex, with the hind margins of eyes on side sinuous; antennae with joint 1 quite 4 times as long as 2, with 3 less than $1\frac{1}{2}$, about $1\frac{1}{3}$ times as long as 1 and 2 combined, more or less rod-like, but slightly stouter in ♀; proboscis rather long, about $4\frac{1}{2}$–5 mm. *Legs* slightly stouter in ♀, with 4–5 spines in apical half below on outer side on hind femora. *Hypopygium* of ♂ (text-fig. 16) similar to that of *plorans* (cf. text-fig. 15), but beaked apical joints slightly shorter, neck region of basal parts slightly more rounded, the aedeagus less rapidly narrowed, and basal strut much less incised along its dorsal margin.

Holotype in the Rhodesian Museum, allotype in the Rhodesian Agricultural Dept.

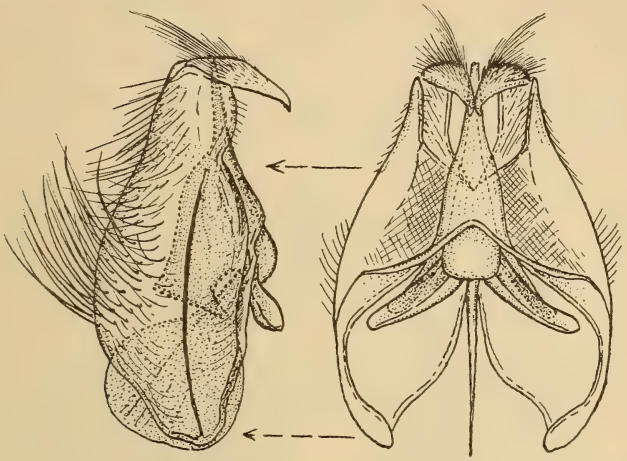
Length of body: about 6–7 mm.

Length of wing: about $7\frac{1}{2}$–$8\frac{1}{2}$ mm.

Locality.—S. Rhodesia: Cloudlands; Vumbu Mts. (6–17/4/23) (♂-type); Umtali (Agr. Dept., Dec. 1934) (♀-type).

Notwithstanding the fact that the base of the wings in ♂ is slightly

more brownish and the veins are less black, I am of opinion that these two specimens belong to the same species. From *plorans* this species differs in having relatively shorter pubescence on face and antennae, shorter first antennal joints, no tuft of whitish hairs behind wings,



Text-fig. 16.—Side and ventral views of hypopygium of ♂ of *Bombylius melanolomus* n. sp.

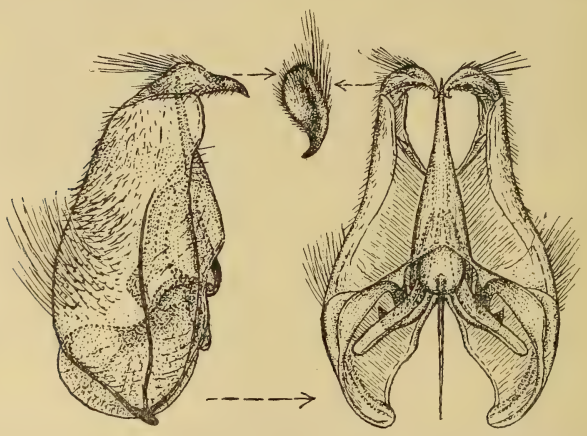
relatively longer proboscis, entirely dark pubescence on pleurae and relatively broader wings. From *lugens* Bezz. (p. 40, The Bombyliidae of the Ethiopian Region, 1924) it differs, according to the description, in having less silvery ornamentation on body in ♀ at least, no conspicuous humeral patch of fulvous hairs in ♀, and much darker to black veins in wings in both sexes. The ♂-holotype was labelled by Brunetti as a ♀ of *plorans* Bezz.

6 ♂♂ 1 ♀ *B. lugens* Bezz.

(P. 40, The Bombyliidae of the Ethiopian Region, 1924.)

Provisionally these seven specimens from South West Africa are referred to *lugens* with the description of which they agree more than with any other species in this category. As these specimens are somewhat denuded, and the ♀ entirely denuded, undamaged material of the same species may eventually prove to be separate from *lugens*, in which case the species would, however, very closely resemble the latter. The specimens are characterised as follows:—*Body*, including legs, entirely black, only the tibiae, in the denuded state, are more dark

reddish brown; pubescence dense as in other species in this series, that on first antennal joints and face, however, markedly dense and distinctly shorter than in *plorans* and much denser than in *melanolomus*, predominantly black above and below, that on front part of thorax in ♂♂ straw-coloured yellowish, with sericeous gleams in certain lights, appearing greyish in certain positions and appearing paler medially in front, that on pleurae entirely black but like that on sides of abdomen and venter having a very dark blackish brown or purplish brown tint in certain positions, without any whitish tuft behind wings,



Text-fig. 17.—Side and ventral views of hypopygium and apical or dorsal view of beaked apical joint of ♂ *Bombylius lugens* Bezz.

with a small tuft of silvery scaling on each side and just in front of ocellar tubercle in ♀, with a tuft on each side of frons anteriorly and a larger one on each side of face in both sexes, the latter tuft more conspicuous in ♀, without any silvery scaling visible on thorax in front in ♂♂ (♀ denuded), with a central row of small spots of silvery scales at apices of tergites on abdomen above in ♂♂, and also indications of silvery scaling on each side at bases of tergites 2–4 in some ♂♂ at least; wings glassy hyaline, iridescent, with the base and alula pale yellowish brown to pale brownish, with the veins pale yellowish and very much paler than in *plorans* or *melanolomus*, with the discoidal cell acute or subacute apically, with the squamae opaquely dark blackish brown and fringed with black hair; halteres very dark or blackish and with almost black knobs. *Head* with the eyes also sinuous behind as in other species in this category, in contact above in ♂♂ for a distance subequal in length to ocellar tubercle, the interocular space in ♀ a little more than 2 times as broad as tubercle; frons in ♀

with the transverse depression rather pronounced; antennae with joint 1 not quite 4 times as long as 2, thus relatively shorter than in *melanolomus* and distinctly much shorter than in *plorans*, with joint 3 proportionally longer than in *melanolomus* and much longer in relation to 1 and 2 than in *plorans*, but as in *melanolomus* not quite $1\frac{1}{2}$ times as long as 1 and 2 combined; proboscis about $3\frac{2}{3}$ mm. long and thus much shorter than in *melanolomus*. *Legs* slender and also with graphite-like or greasy greyish scaling; hind femora with about 4–5 spines in apical half on outer side. *Hypopygium* of ♂ (text-fig. 17), with the inner apical angles in neck region of basal parts not produced beyond bases of beaked apical joints, apparently without a row of stout spines along its upper edge; beaked apical joints with their apices comparatively blunt and curved slightly outwards; aedeagus with the apical part long, straight, and slender, reaching level of apical processes of basal part.

Length of body: about 6–7 mm.

Length of wing: about $6\frac{1}{3}$–$7\frac{1}{2}$ mm.

Locality. — S.W. Africa: Kaokoveld; Cayimaeis (Mus. Exp., March 1925).

1 ♀ *B. tuckeri* n. sp.

Black; pleurae, where denuded, more dark reddish brown; legs with the femora black, the tibiae more dark blackish brown; pubescence as dense as in other species in this series, the bristles on scutellum apparently more prominent than in the preceding three species, the pubescence predominantly black above and below, that on lower part of occiput, on thorax in front and to a certain extent along sides above wings gleaming sericeous brownish or fulvous, but intermixed with dark hairs, with the fine scaling on thorax above especially in front and across base gleaming golden brownish, with some sparse pubescence on pleurae also fulvous or brownish golden in certain lights, with a small spot of silvery scaling on each side just in front of ocellar tubercle, a larger spot on each side of frons anteriorly and a more conspicuous silvery tuft on each side of face, with some silvery white scaling on each side behind eyes, with a brilliantly shining silvery white spot of scaling on each side at humerus and in line with them 2 admedian patches in front, with a spot of silvery white scaling on each side in front of wing-bases and in line with them 2 discal patches and with a roundish spot of brilliantly shining silvery white scales on each side at base of thorax in front of scutellum, with an elongated transverse patch of silvery white scaling on each side at

base of tergite 2, and much smaller patches on each side at base of tergites 3–6, and also with indications of a central row of small silvery white patches at apices of the tergites, with the fine, hair-like, depressed scaling on abdomen above dark, but gleaming brassy or even opalescent in certain lights, without any whitish tuft of hairs behind wings, with the scaling on legs dark and graphite-like, gleaming greyish; wings vitreous hyaline, iridescent, with the base and alula blackish brown, with the veins brown to dark brownish, with the discoidal cell subacute apically, the cross vein very short however, with the squamae very dark blackish brown and fringed with black hair; halteres dark brownish, with the knobs blackish. *Head* with the eyes slightly sinuate behind, separated above on vertex by a space about 2 times as broad as ocellar tubercle; frons rather rapidly widening apically; antennae with joint 1 a little more than 4 times as long as 2, with 3 only a little longer than 1 and 2 combined, subrod-like, but apparently thickest at about middle, ending apically in a small, conical basal element bearing a style; proboscis about 4 mm. long. *Legs* with about 4 spines in apical half on hind femora.

Type in the South African Museum.

Length of body: about 6½ mm.

Length of wing: about 7 mm.

Locality.—S.W. Africa: Grootfontein (Lightfoot, Dec. 1918).

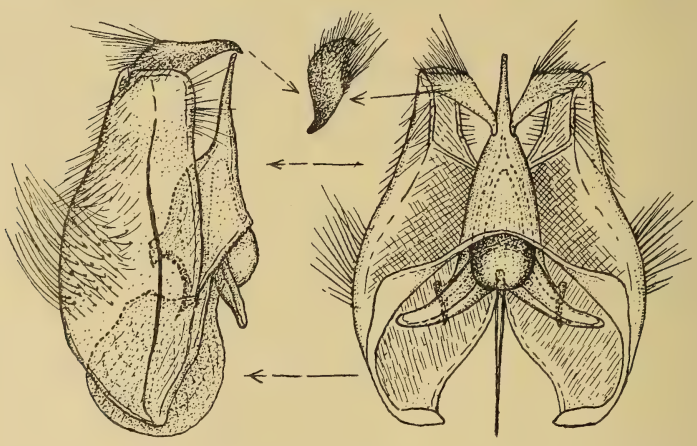
B. ornatus Wied.

(P. 345, Aussereurop. Zweifl. Ins., i, 1828; Bezzi, p. 42, The Bombyliidae of the Ethiopian Region, 1924.)

This species is apparently very common throughout Southern Africa and South West Africa, and there is no doubt that it also appears to be variable. According to Bezzi (pp. 42 and 43, loc. cit., and p. 11, Ann. S. Afr. Mus., vol. xviii, 1921), there seems to be very little difference between the ♂♂ of *ornatus* and *kilimandjaricus* Speis. From labelled specimens in the South African Museum, the ♂♂ of *ornatus* differ from those of *kilimandjaricus* (as labelled by Bezzi) chiefly by having the tuft of white scales on sides of tergite 4 slightly longer and more brush-like, the apex of discoidal cell more subacute and the base of wings usually slightly darker. The hypopygium shows practically no differences, except that in that of *ornatus* there seem to be fewer and shorter hairs on the beaked apical joints, the apices of the beaked apical joints appear comparatively shorter, and the apical part of the aedeagus also appears to be slightly shorter and less slender. The

chief difference between ♀♀ of *ornatus* and *kilimandjaricus*, according to Bezzi, is, however, the absence of fulvous hair on the occiput in *kilimandjaricus*. Whether specimens labelled as *kilimandjaricus* by Bezzi are specifically identical with the ♂-*kilimandjaricus* described by Speiser from Kilimandjaro (*see* p. 75, Zool. Kilimandjaro-Meru., Exp. II, 1905–1906) is doubtful. Speiser states that the base of the wings and including the alula is blackish grey, and the silvery scaling on sides of abdomen is on last 2 tergites. In all the specimens before me the alula is distinctly subopaquely whitish, only the squamae being blackish, and the long white scaling on sides of abdomen is practically confined on each side of base of tergite 4, though tergite 2 also has a small patch of depressed silvery scaling on each side basally. Provisionally I prefer to consider all the specimens before me as belonging to *ornatus*, a species which is variable to a great extent. The species *ornatus* is very characteristic and chiefly characterised by having an entirely black body, scutellum, and legs in both sexes, by having the pubescence in ♂♂ predominantly black, but that on occiput, front part of thorax, and to a certain extent sparsely on scutellum straw-coloured whitish to yellowish, appearing greyish to even slightly more fulvous in certain lights, that on occiput and front part in typical ♀♀ also more or less fulvous or more straw-coloured yellowish, usually more yellowish than in ♂♂, with the following patches of brilliantly gleaming and very conspicuous silvery scaling on body: a tuft on each side of face in both sexes, but broader in ♀♀, a small tuft on each side of frons in ♂♂, a tuft on each side of frons in front and another one nearer middle and towards base of frons on each side in ♀♀, a few silvery scales on sides of head behind eyes in ♂♂ and a much broader and more conspicuous patch in ♀♀, a humeral patch on each side and a small patch on each side in front of wings in ♀♀, a basal patch on thorax on each side in front of scutellum in ♀♀, some scaling on scutellum in ♂♂, a central row of spots on abdomen above in both sexes, becoming larger apically in ♂♂, a spot on each side at base of tergite 2 in both sexes, a conspicuous tuft of hair-like scales and depressed scales on each side of tergite 4 in both sexes (extending obliquely down on tergites 5 and 6), and the transverse scaling across hind margins of sternites especially on sides and especially in ♂♂, with the pubescence on pleurae sometimes having a distinct coffee-brownish tint in certain lights and with the fringe of the squamae strikingly white in both sexes and the upper anterior part of metapleural tuft also strikingly white; wings vitreous hyaline but the base yellowish brown, appearing more blackish at extreme base, with the

alula subopaquely whitish, with the veins yellowish to yellowish brown, the costal vein darker, with the discal cross vein just before the middle of discoidal cell and apex of discoidal cell either subacute or very acute (an apical cross vein practically wanting), with the halteres and knobs black; head with the hind margin of eyes on side distinctly, though only slightly, sinuate or emarginate, the eyes in actual contact above in ♂♂ for a distance at least as long as ocellar



TEXT-FIG. 18.—Side and ventral views of hypopygium of ♂ of *Bombylius ornatus* Wied.

tubercle, separated in ♀♀ quite 2 times as broad as tubercle, with the third antennal joints more or less rod-like, not very much thickened basally, with the proboscis long and slender 4½–6 mm. long. *Hypopygium* of ♂ (text-fig. 18) more or less typical of this series, with the hairs on dorsum of basal parts shorter than in *plorans*, the beaked apical joints, as in other species of this section, provided with a crest of bristly hairs on inner upper side.

Locality.—Cape Province, Natal, Zululand, Transvaal, O.F.S., S.E. Africa, and S.W. Africa. (In the Imp. Institute, the Deutsches Entomologisches Institut, the British, Transvaal, Durban, Natal, and S. Afr. Museums.)

One ♀-specimen from Kimberley, which Bezzi referred to *kilimandjaricus* (*see* p. 11, Ann. S. Afr. Mus., vol. xviii), differs from the more or less typical ♀♀ of *ornatus* in having 2 shortened silvery stripes discally and centrally on thorax in front, in having all the pubescence on occiput and thorax in front black, in having the silvery scaling on sides of tergites 4–6 shorter, and in having a conspicuous patch of

silvery white scaling on upper half of the sternopleuron. There is no doubt that this specimen differs much from the typical forms and is also different from the Nyasaland ♀ described as *kilimandjaricus* by Bezzi (p. 43, The Bombyliidae of the Ethiopian Region). In view of the fact that the sternopleuron is adorned with a very conspicuous patch of silvery scales, this specimen really ought to be referred to a new species, but as the specimen is unique and ♂♂ are wanting it is provisionally referred to a variety of *ornatus*.

1 ♀ *B. okahandjanus* n. sp.

A somewhat denuded ♀-specimen in the British Museum, obviously belonging to the *ornatus*-series, is characterised by the following characters:—

Body entirely black; legs with the femora black and the tibiae very dark reddish brown, almost black; pubescence straw-coloured whitish on antennal joint 1, thorax in front, on pleural parts, in metapleural tuft and venter below laterally, some on occiput and that towards disc of thorax inclining to yellowish, with the hairs on antennal joint 1 comparatively short for this group, fine and not dense, with the bristly hairs on tubercle, frons and genae, the bristles in front of wing-bases and bristly hairs on abdomen above (as far as these have not been denuded in this specimen) black, with silvery white scale-like, flattened hairs in form of a tuft on each side of frons anteriorly, on each side of face (densely), a few on each side of antennal joint 1, a dense patch behind eyes, a spot or patch on humeral angles, in an elongated patch in front of wing-bases, some finer ones towards middle on each side of thorax anteriorly in form of a longitudinal band, dense ones on mesopleuron, some on propleural parts, at base laterally of abdominal segment 2, as tufts on sides of segments 4 and 5 and along sides of venter, conspicuously present and even densely on coxae, femora, and tibiae, especially along lower surfaces, with distinct indications of, and some still adhering, resplendent greenish, bluish, metallic and iridescent, broadish, flattened scales on thorax and scutellum, and purplish red or pinkish ones on abdomen above; wings glassy hyaline, with iridescence, the base, costal cell, and alula sub-opaquely yellowish and the extreme base black, with the basal comb black, but also showing yellowish scaling, the veins pale yellowish brown, with the discal cross vein just before middle of discoidal cell, and the discoidal cell acute apically, with the squamae opaquely blackish brown basally and more whitish towards margin, fringed

with white hairs. *Head* with the interocular space about 2 times as broad as tubercle; antennae with joint 1 about 5 times as long as 2, with 3 subrod-like, thicker than 1, subequal to, or scarcely longer than 1 and 2 combined. *Legs* with about 3–4 shortish spines on hind femora below from just before or about the middle to apex.

Type in the British Museum.

Length of body: about 6 mm.

Length of wing: about 6 mm.

Locality.—S.W. Africa: Okahandja (Turner, 12–18/12/27).

Easily recognised by the extensive silvery white scaling on legs and front parts of pleural regions below and by the presence of greenish, bluish, and purplish red, broadish scales on body above as in some species of *Chasmoneura*. From *ornatus* it differs in the presence of silvery white scaling on the legs, bluish, greenish, and purplish red ones scattered on body above and also by the pale, short, and finer hairs on first antennal joints.

B. rufiventris Macq.

(Macquart, p. 116, Dipt. Exot. Suppl. i, 45, 1846; Bezzi, p. 12, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species is easily recognised by the whitish hair on the thorax in front in ♂, the presence of reddish or reddish yellow, depressed scaling on scutellum and disc of abdomen above, especially in ♀. The ♀ also has conspicuous spots of silvery white scales on the thorax as well as on the abdomen. From *ornatus* it may be distinguished by the paler pubescence on body above, the less developed patch of white hair laterally on the abdomen, and the presence of reddish scaling on abdomen above. *Hypopygium* of ♂ does not differ much from those of the other species in this series, with the smooth basal parts provided dorsally with a tuft of longish hairs, with the inner apical parts in neck region not produced; beaked apical joints provided with longish hairs above, longer on inner aspect and slightly longitudinally depressed above; aedeagus projecting very slightly beyond apices of basal parts; basal strut racket-shaped and not projecting beyond bases of basal parts.

Locality.—S.E. Africa: Natal, Zululand, and East Transvaal. (In the Transvaal, Natal, British, and S.A. Museums and in Imp. Institute.)

B. elegans Wied.

(P. 342, Aussereurop. Zweifl. Ins., i, 1828; Paramonow, pp. 73 and 74, Trav. Mus. Zool. Kiev. No. 11, 1931; syn. =*furiosus* Walk., p. 286, Trans. Ent. Soc. Lond., vol. v (n. ser.), 1860.)

From both Wiedemann and Paramonow's descriptions there is no doubt that *furiosus* Walk. is a synonym of *elegans* Wied. This species is easily distinguished from all other species in the *ornatus*-series by the characteristic tuft of fulvous or orange yellow hairs on each side of the abdomen, the yellowish brown pubescence on thorax in front, and the extensive development of golden brown or reddish golden scaling on scutellum and disc of abdomen, especially in ♀♀, in addition to the bright silvery white spots on thorax and abdomen in ♀♀. It can only be confused with *auricomus* Bezz. (p. 44, The Bombyliidae of the Ethiopian Region), described from Abyssinia, but also reported from Natal. This latter species, according to the short description, is, however, entirely or predominantly yellowish-haired.

Locality.—S.E. Africa: S.E. Cape, Natal, and Zululand. (In the British, Natal, Transvaal, and S.A. Museums and Imp. Institute.)

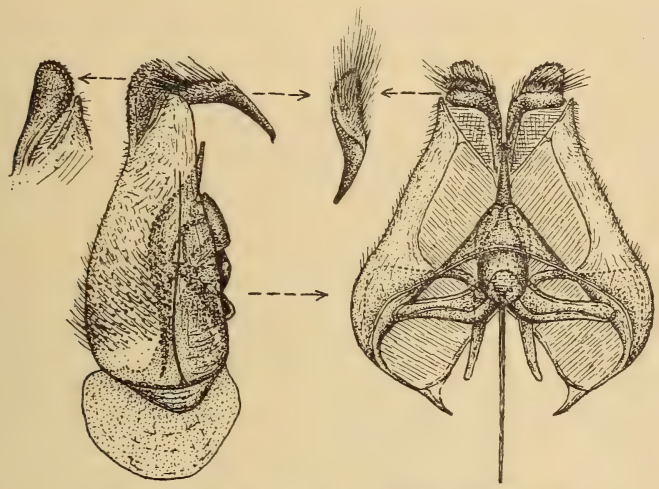
Section 4.

3 ♂♂ *B. permixtus* n. sp.

Body, including proboscis, black; hind margins of abdominal segments above, especially laterally, often obscure reddish, the hind margins of ventral segments narrowly pallid to reddish, with the apical parts of exposed genitalia reddish; legs yellowish, with the basal half of front femora and extreme basal parts of middle and hind ones dark brownish to blackish brown, the last 3 or 4 tarsal joints also darkened, the apices of the claws and the spines on the legs black; pubescence pale, soft yellowish white, that on occiput and front part of thorax, in certain lights paler and more whitish, that on sides of abdomen in basal half distinctly more pale yellowish, becoming very pale yellowish white, almost white, apically; fine bristly hairs on ocellar tubercle, sides of frons, on first antennal joints and on face blackish, with a patch of depressed pubescent hair-like scaling, on each side of antennal joints, shining silvery white; hair below head and on pectoral regions whiter than above, that on sides of pleurae, however, in front of wings a soft pale yellowish white, which, in certain lights, is distinctly yellowish, the metapleural tuft being almost white, with the hair on venter laterally whiter than on abdomen

above; fine depressed pubescence on body above, especially on abdomen, very pale yellowish white; macrochaetae in front of wings yellowish; wings hyaline, but with an almost imperceptible and very faint yellowish tinge towards base, the costal cell, base, alula and part of first basal cell being more distinctly yellowish, with the small spines of basal comb brownish black and the hair-like scaling behind them yellowish white, the squamae opaquely yellowish and with white fringes, the veins yellowish to yellowish brown, becoming paler and more yellowish towards base; halteres yellowish, with yellowish knobs. *Head* with the inner margins of the eyes above in contact for a distance subequal to or a little longer than length of ocellar tubercle, diverging posteriorly and embracing the tubercle and very rapidly anteriorly; eyes with the upper facets distinctly coarser and more so anteriorly; frons with a distinct, central, and comparatively broad depression; face with the mystax comparatively well developed; occiput with the hair short; antennae with joint 1 comparatively short and not thickened, about or nearly $2\frac{1}{2}$ times as long as 2, with 2 longer than broad, with 3 (terminal joints excluded) a little less or about $1\frac{1}{2}$ times as long as 1 and 2 combined, slightly constricted at base, compressed in basal half and, seen from side, club-shaped, being broadest in basal half or third, broadest across basal fourth, more or less rapidly narrowed to middle and from there parallel, the apex, however, being broadened again, with the basal terminal joint comparatively long, narrower basally than apex of 3, gradually attenuated and longer than the comparatively short and stout style; palps dark brownish, comparatively long and slender; proboscis about 4–5 mm. long, the numerous spinules below distinctly visible. *Thorax* comparatively convex discally, with 3 or 4 distinct macrochaetae on each side in front of wings, the bristles on posterior calli and scutellum very feeble; wings with a comparatively poorly developed basal comb, the second longitudinal vein only slightly undulating, discal cross vein very much before middle of discoidal cell (almost *Systoechus*-like, the first basal cell being only slightly longer than the second), the discoidal cell acute apically and the alula comparatively large. *Abdomen* with the hair fine and soft and without any distinct stouter hairs or bristles across hind margins. *Legs* with longish hair on front and middle femora below and basally only on hind ones; front femora with an insignificant spine on outer lower and apical aspect; middle ones with 1 or 2 feeble spines in front; hind femora with about 8–10 spines below from near base to apex or at least from before middle and with about 3–5, often pallid, spines on inner apical aspect below; claws

more or less rapidly curved downwards from about middle to apex and the pulvilli just reaching curved apices. *Hypopygium* (text-fig. 19) with the basal parts provided dorsally with hairs in punctures, with the neck region narrow and not dilated along its lower inner margin, with the inner dorsal margin raised slightly crest-like, produced apically as long inner apical processes, projecting much beyond bases of apical beaked joints, broad and strap-like with rounded apices



Text-fig. 19.—Side and ventral views of hypopygium, dorsal view of inner apical process, and dorsal view of beaked apical joint of ♂ *Bombylius permixtus* n. sp.

(shown also from dorsal aspect); beaked apical joints more or less elongate, armed above with a crown of dense spine-like hairs, produced apically into a long slender pointed beak; aedeagus not reaching bases of apical joints, without any distinct ventral aedeagal process, but with basal part below slightly projecting and raised, the basally directed aedeagal struts visibly projecting; lateral struts shoe-horn shaped; basal strut projecting beyond bases of basal parts, racket-shaped, but with a deep dorsal sinuosity, the dorsal part of which is pointed and projecting.

Type in the S. Afr. Museum.

Length of body : about $7\frac{1}{2}$–8 mm.

Length of wing : about 8–$8\frac{1}{4}$ mm.

Locality. — S.W. Africa: Kaokoveld; Cayimaeis (Mus. Exp., March 1925).

1 ♂ 3 ♀♀ *B. subacutus* n. sp.

Together with *permixtus*, there are a ♂-specimen and 3 ♀♀ from other localities, which also belong to this section. The ♂ differs from *permixtus* in having a slightly more yellowish pubescence in certain lights on the thorax and a distinctly more golden yellow patch on each side of antennae, a few distinct dark hairs are present on each posterior callus; first, second, and basal half of third antennal joints are reddish yellow, the third joint is comparatively much less thickened in basal half and there also less broad, more distinctly hairy, and the apex less dilated than in *permixtus*; coarser facets on eyes above slightly more extensive; palps yellowish, only the apices being darkened; metapleural tuft distinctly more yellowish; wings with a feeble cinereous or greyish tinge, with the costal cell, first basal cell, extreme base and alula distinctly darker, more yellowish brown, and there are distinct infuscations just below fork of second and third longitudinal veins, on discal cross vein and on basal cross vein of fourth posterior cell; the veins are also comparatively darker towards base, the squamae also with a slightly more yellowish fringe, the apex of discoidal cell much less acute and the cross vein distinct but short; legs entirely yellowish, only the last two tarsal joints blackish, the middle femora with 1 or 2 distinct apical spines above and the lateral anterior ones insignificant, the hind ones with about 10–11 spines below, the claws comparatively longer, not sickle-shaped and almost straight, only very slightly bent; pulvilli very small, confined to base, almost invisible; abdomen with a few intermixed dark hairs laterally. *Hypopygium* like that of *permixtus*, but the dorsum of basal parts with comparatively fewer hairs; beaked apical joints with relatively longer and sharper beaks; lateral struts comparatively narrower and the basal strut more chopper-shaped, less broad, the dorsal sinuosity less deep.

The three somewhat denuded ♀-specimens, which I take to belong to the same species, differ from the ♂-holotype in having only the extreme apex of third antennal joint blackish and the joint itself comparatively more thickened in basal two-thirds; face reddish; macrochaetae in front of wings and bristles on posterior calli stouter, stronger developed and more reddish or orange golden; bristles on scutellum stouter and blackish; abdomen above with distinct stouter and longer bristles in transverse rows across hind margins; these are composed of yellowish and blackish ones intermixed, the venter with blackish ones towards apex; interocular space less than 3 times, only

a little more than 2 times, as wide as ocellar tubercle; frons with more extensive yellowish golden pubescence, more or less concentrated as a more whitish patch on each side of antennae; the bristles on ocellar tubercle, sides of frons, on antennae and in mystax yellowish, only a few bristles blackish on sides of genae above; wings with the cinereous tinge more evident and the costal and basal infuscations slightly more reddish brown; legs with the 10–11 spines below on hind femora much stouter.

Types in the S. Afr. Museum.

Length of body: about 7–8½ mm.

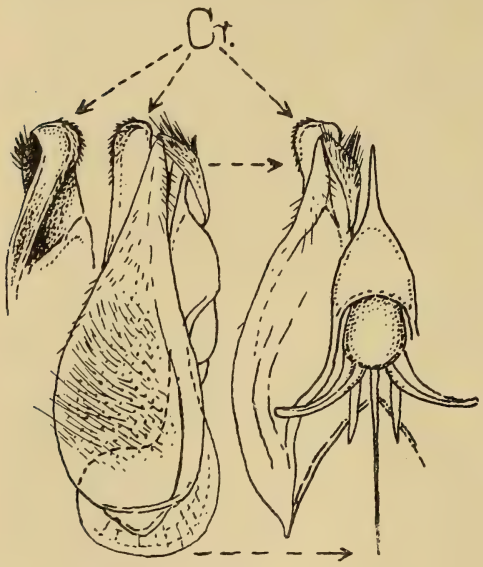
Length of wing: about 8–10½ mm.

Locality. — S.W. Africa: Kaokoveld; Cayimaeis (Mus. Exp., March 1925) (Holotype); Kamanyab (Mus. Exp., March 1925) (Allotype); Kaross (Mus. Exp., February 1925).

1 ♂, 1 ♀ *B. cockerelli* n. sp.

Black; narrow front margin of face and the buccal rims pale yellowish brown; legs predominantly yellowish, the trochanters and coxae being much darker and more brownish, with the upper apical surfaces of the femora and upper parts of the tibiae more or less blackish-scaled, with the spines black, the last 3 or 4 apical tarsal joints as well as apices of the claws black; pubescence predominantly whitish, with, however, some depressed and also shortish erect yellowish or pale brownish golden pubescence on thorax above towards front part and also basally in ♀ at least (as far as the hair above has not been denuded in this ♀ specimen), with the short depressed pubescence on abdomen above (as far as it is still visible) as well as some longer hairs on sides of segment 3 and intermixed ones towards apex on segments 5–7 in ♀, also pale brownish golden or yellowish sericeous, with the pubescence on body below predominantly and markedly whitish, with the bristly hairs on ocellar tubercle, frons, on antennal joint 1 above and intermixed on face and genae (denser on genae) in both sexes, some intermixed bristly hairs on sides of segments 1 and 2, distinctly more numerous and conspicuous ones on sides of 3 and numerous transverse ones apically on 5–7 in ♀ at least, black (most of the bristles on abdomen above have been denuded, but apparently are dark posteriorly, becoming paler towards base and that of ♂ is entirely denuded), with the bristles in front of wing-bases sienna brownish; wings vitreous hyaline, with the base, costal cell and basal half of first basal cell subopaquely yellowish white, slightly

more distinctly yellowish at base, with the basal comb black, the veins dark brownish, becoming paler towards base, with the discal cross vein a little before middle of discoidal cell, the squamae whitish opaque, dark-bordered, and white fringed; halteres pale yellowish, with the knobs dark blackish brown above and laterally. *Head* with the interocular space, at narrowest part in ♀, about 2 times as broad as tubercle, in ♂ in contact above; antennae black, with joint 3 scarcely broadened basally, rapidly tapering only in apical fourth, with scattered short hairs visible above in certain positions, with at least the first terminal joint distinctly separately visible and with 2 and 3 fused but prominent; proboscis about 5 mm. long and with the fine spinules on its surface rather distinctly visible. *Legs* without any spines on front femora below, with about 1 spine on middle ones in front and with about 13 spines on hind ones below from near base to apex and with rather numerous spines apically above on hind ones; claws rather rapidly bent downwards apically and with the pulvilli about reaching the apices of claws. *Hypopygium* of ♂ (text-fig. 20) showing dorsal, lateral, and ventral views of the raised crest-like inner apical dorsal margin (Cr.) in neck region of basal parts which is very prominent in this species; dorsum of basal parts with setiferous punctures; aedeagus with a bell-shaped base and no process below.



Text-fig. 20.—Side view and half of ventral view of hypopygium of ♂ of *Bombylius cockerelli* n. sp.

Types in the Imperial Institute of Entomology.

Length of body: about 9 mm.

Length of wing: about 9½ mm.

Locality.—N.W. Karoo: Calvinia (Mrs. Cockerell, 11–16/11/31) (Holotype). S. Karoo near Oudtshoorn (Mrs. Cockerell, 1/11/31) (Allotype).

This species is easily recognised by its predominantly whitish pubescence, yellowish legs, which have black spines, etc. It appears to be a Karoo representative of this section with yellowish, but black spined, legs and pale coloured pubescence to which *permixtus* and *subacutus* from S.W. Africa also belong. The ♂ specimen, though very much denuded, obviously belongs to this species.

1 ♀ *B. karasanus* n. sp.

Body, including scutellum and antennae, black; legs yellowish red, the extreme apices of femora (or knees) and apical parts of tarsi, however, darkened, with the spines on femora and the spicules on tibiae and tarsi black and with a tendency for the minute scaling on outer surfaces of the tibiae to be black, the scaling on femora, however, sericeous whitish; pubescence not very dense and long, that on abdomen towards apex the longest, that on frons, face, and genae not very dense, predominantly sericeous whitish, the scaling along inner margins of eyes more silvery, with the dense bristly hairs on occiput appearing more whitish in certain lights, the hair on thorax above comparatively sparse and whitish, but appearing greyish in certain lights, that on sides in front of wings gleaming more sericeous, the more woolly pubescence on pleurae duller and frosty white, the bristly hairs on coxae, however, gleaming sericeous whitish, with the sparse hair-like depressed scaling on thorax sericeous yellowish but frosty whitish on the two whitish longitudinal lines over disc, with the pubescence on abdomen (as far as this is not denuded) composed of depressed, flattened, frosty white scaling and sericeous yellowish to golden scaling and silvery or sericeous whitish gleaming hairs and bristly hairs the bases of which are distinctly golden yellow towards apex at least and intermixed with which there are transversely towards apex blackish hairs and also distinct blackish hairs on sides of abdomen, on tergites 2 and 3, the short erect hair on sides of tergite 1 entirely white, with the dense scaling and hairs on venter predominantly white and that on extreme sides of abdomen also white, with the macrochaetal bristles on each side in front of wings gleaming reddish yellow, the feebler bristles on post-alar calli and across hind margin of scutellum predominantly whitish, their bases however more yellowish, without any distinct and stout transverse bristles across hind margins of abdomen; wings rather elongate, having the shape characteristic for *permixtus*, *subacutus* and *cockerelli*, glassy hyaline, the base, alula, and costal cell more subopaquely whitish, with the

basal comb black, with the veins dark blackish brown, becoming more brownish to yellowish brown towards base, the veins at base being yellowish brown excepting the dark costal vein, with the discal cross vein much before middle of discoidal cell, the discoidal cell subacute apically, the apical cross vein short but distinct as in *subacutus*, with the squamae subopaquely whitish and fringed with white hairs; halteres pale yellowish brown, with the knobs very dark brown above. *Head* with the interocular space on vertex about $2\frac{1}{3}$ times as broad as ocellar tubercle; antennae with joint 1 slightly thicker apically than basally, about 3 times as long as 2, with joint 3 (including terminal elements) quite 2 times as long as 1 and 2 combined, broadest near base (profile), then gradually narrowed apically, the apical half, however, equally thick and rod-like, with the terminal elements well developed as in *subacutus* and the other species in this series, composed of more or less 3 distinct and separately visible elements, a short basal joint, a longer second joint, and a bluntish short stylar element; proboscis long, about 5 mm. long, the apical lobes of labella broadish and rounded, the proboscis itself apparently less spinulose than in the other species; palps dark, but whitish-haired. *Legs* without any spines on front and middle femora; hind ones with about 8–9 spines from near base to apex on outer side below and 1 or 2 smallish ones on inner side towards apex; claws curved down apically and the pulvilli well developed, extending to middle, or even slightly beyond middle, of claws.

Type in the South African Museum.

Length of body: about 9 mm.

Length of wing: about $9\frac{1}{2}$ mm.

Locality.—S.W. Africa: Great Namaqualand; Great Karas Mts. (Mus. Exp., Nov. 1936).

This species is easily distinguished from *subacutus* by the black antennae, black face, predominantly whitish pubescence, dark veins in wings and claws which are distinctly curved down apically and which have well developed pulvilli. From *permixtus* it may be distinguished by the more whitish pubescence above and below, the more rod-shaped third antennal joints, darker wing-venation, and less acute discoidal cell. From *cockerelli*, which it more closely resembles, it may be distinguished by having an entirely black face, absence of black hairs on antennae, face, and genae, slightly broader interocular space, slightly more basally thickened third antennal joints, and slightly less obviously spinulated proboscis.

The above four species together show a mixture of characters,

which show affinities with members of section 3, such as the presence of silvery patches on each side of antennae (*permixtus* and *subacutus*), the acuteness of the discoidal cell and the position of the discal cross vein, which is even nearer the base of the cell. With members of group 2, they agree in being yellow or whitish-haired, having yellow legs, etc. To a certain extent they also show affinities with the *mollis*-series in having black spines on the legs. The wings are peculiar in that they are relatively elongate and narrowish in all four species.

Section 5.

B. mollis Bezz.

(P. 15, Ann. S. Afr. Mus., vol. xviii, 1921; Bezzi, p. 54, The Bombyliidae of the Ethiopian Region, 1924; syn. = *disjunctus* Bezz., p. 15, Ann. S. Afr. Mus., vol. xviii, and p. 54, loc. cit.)

In the collections before me there is, in addition to the ♂-type of *mollis* and a ♀ specimen from Salisbury (24/4/17) labelled as a ♂-*disjunctus* Bezz. by Bezzi, a series of ♂♂ and ♀♀ which obviously belong to the same species. The ♂♂ agree in every respect with the ♂-type of *mollis* and the ♀♀ with the ♀-specimen of *disjunctus* (mistaken for a ♂ by Bezzi) and also with the long description of *disjunctus* (Bezzi, pp. 54–55, The Bombyliidae of the Ethiopian Region). There is no doubt that Bezzi did not examine the genital segment of the ♀-specimen in the South African Museum, which he referred to a ♂-*disjunctus*. Owing to the fact that in *mollis* the terminal abdominal segments are somewhat telescoped, a mistake in distinguishing the sexes is easily made. As this species is practically unique in having the interocular space in ♀♀ very narrow, there is no doubt that all Bezzi's specimens of *disjunctus* from Nyasaland, Abyssinia, Kenya, Uganda, and Natal described as ♂♂ of *disjunctus* will, on examination, prove to be ♀♀ and moreover the ♀♀ of *mollis*. The interesting comments of Bezzi on p. 54 (loc. cit.): ". . . The following description also applies in most points to the preceding species (i.e. *mollis*), and it would seem that the two species exist side by side; yet it is very curious to note that in both cases, as in all the known species of the *B. mollis*-series, only males are known . . ." seem to support my contention that *disjunctus* Bezz. is a synonym of *mollis* Bezz. of which it represents the female sex. This species, as based on the ♂-type and the series of ♂♂ and ♀♀ from southern Africa, is characterised as follows: *Body*, including scutellum, black, with the pleurae some-

times infused with reddish brown or yellowish brown around the sutures, with the abdomen characteristically cordiform in shape, broad, its apical part appearing truncated due to the terminal segments being telescoped or tucked in under segment 5; legs yellowish, only the knees on outer side may be darkened and the apical parts of tarsi also darkened, with the spines on femora below and the spicules on tibiae and tarsi black; pubescence dense, but not markedly long, that on thorax above with a somewhat shorn off appearance, especially in ♂♂, that on sides of abdomen the longest and tuft-like opposite the segments, that on body above predominantly creamy yellowish, greyish yellow to pale golden yellowish, that on pleurae, especially lower part, and on coxae paler, appearing more creamy whitish in certain lights, that on face gleaming more sericeous yellowish, that on genae more brownish, that on face in ♂♂ with distinct dark or blackish hairs projecting apically beyond apices of pale hairs, the hairs on lower parts of genae in both sexes also predominantly dark, but more so in ♂♂, and in ♂♂ also with a row of dark hairs or some dark hairs on sides of face, with the bristly hairs on first antennal joints in ♂♂ predominantly dark blackish brown, in ♀♀ with more numerous yellowish or pale ones, the bristly hairs on ocellar tubercle and on sides of frons in both sexes very dark blackish brown or black, with intermixed fine erect hairs on disc of thorax and basally, intermixed bristly hairs on post-alar calli, on disc and across hind margin of scutellum and the transverse bristly hairs across hind margins of abdominal tergites from 2 to apex, denser, longer, and more conspicuously tuft-like on sides of tergites 2–4, black, the bases of the black hairs on abdomen at least paler and more yellowish in certain lights, with the 2 macrochaetal bristles in front of wings yellowish, with the pubescence on venter predominantly pale creamy yellowish, appearing whiter along sides where the pubescence is also denser and longer, with the fine depressed scaling on frons in ♀♀ brassy or golden yellowish, that on thorax above, on scutellum and much denser to very dense on abdomen above, gleaming brassy to golden yellowish, with the scaling on legs dull whitish, but with feeble yellowish tints in certain lights; wings rather narrowish and pointed, especially in ♂♂, vitreous hyaline to even slightly greyish hyaline, the basal part, costal cell, bases of marginal and first submarginal cells, the greater part of first basal cell, to a certain extent the second basal cell and extreme base of anal cell in ♂♂ usually darker and tinged more subopaquely yellowish brown or yellowish than in ♀♀ where it is more subopaquely greyish, with the basal comb poorly developed and blackish but with pale scaling above,

with the veins brownish yellow to dark brownish and even very dark brownish in some specimens, the costal and first longitudinal veins usually appearing darker, with the first posterior cell sharply and angularly acute apically, the stalk shortish with the discal cross vein before or even much before middle of discoidal cell, with the discoidal cell subacute apically, with the alula more greyish hyaline than hyaline part of wing, its fringe darkish, but the much longer hairs near base yellowish, with the anal cell comparatively not very broad, with the squamae subopaquely yellowish brown or pale yellowish brown and fringed with creamy yellowish hair; halteres pale yellowish brown, with very pale yellowish spherical knobs. *Head* with the eyes above in ♂♂ in actual contact for a distance at least as long as length of ocellar tubercle or at least subequal to its length, separated above on vertex in ♀♀ by a space which is remarkably narrow, at narrowest part only about $1\frac{1}{3}$–$1\frac{1}{2}$ times as broad as narrowish tubercle, the inner margins of eyes then subparallel for a distance nearly or quite 2 times as long as ocellar tubercle before they gradually diverge apically, the frons in ♀♀ thus narrow and elongate; eyes in ♀♀ with the facets in upper anterior part very much coarser than on rest of eye, and also unique in being distinctly coarser than in ♂♂; face in ♀♀ also remarkable in being slightly narrower than in ♂♂; antennae with joint 1 about $3\frac{2}{3}$–4 times as long as 2, with 3 quite $1\frac{1}{2}$ times as long as 1 and 2 combined, broadest before middle, narrowed apically and slightly more so dorsally, the joint in profile thus appearing slightly humped, the apical part slender, ending apically in a distinct nodular and joint-like basal element, passing into a second conical joint-like element which itself passes into the somewhat blunt stylar element; proboscis long, about $5\frac{1}{2}$–$6\frac{1}{2}$ mm. long; palps short, thick and with longish hairs on side. *Legs* with sparse and longish hairs on femora below, without any spines below on front femora; middle ones with some minute ones below; hind femora with from 5–11 spines below from just before, or even from, middle to apex (the ♂♂ usually with more numerous spines) on outer side and a row of small ones on inner side; claws sickle-shaped and the pulvilli well developed; anterior tarsi in ♀♀ with the joints not modified or thickened. *Hypopygium* of ♂ (text-fig. 21) is characterised by the well-developed inner apical angles or processes of basal parts, which are broad, flattened, projecting prominently beyond beaked apical joints and are rounded apically, provided with dense, short hairs along dorsal margins; beaked apical joints remarkable in that they are more or less laterally compressed, flattened in apical half, and their apices are bluntly rounded and not acutely

pointed as in other species of *Bombylius*; aedeagus with the apex not projecting beyond bases of beaked apical joints, broad in basal half.

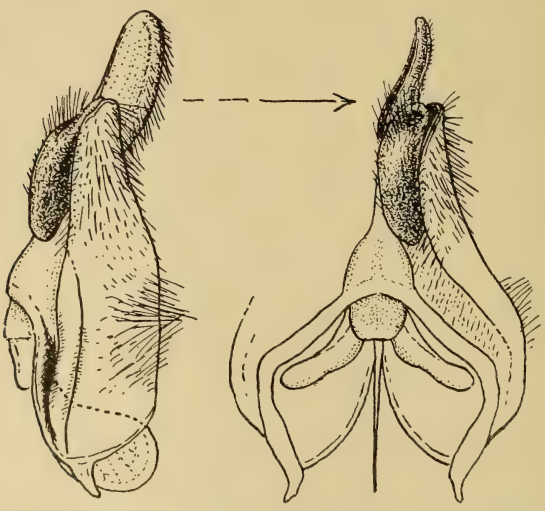
In the Imperial Institute, British, Natal, Transvaal, and South African Museums.

Length of body : about 8–10 mm.

Length of wing : about 8–9 mm.

Locality.—S.E. Cape Province, Karoo, Natal, Transvaal, Rhodesia, and, according to Bezzi, East and Central Africa.

The species is easily recognisable by its cordiform abdomen, its narrow interocular space in ♀♀, the tufts of black hair on sides of



Text-fig. 21.—Side view and half of ventral view of hypopygium of ♂ of *Bombylius mollis* Bezz.

abdomen, and by the apically acute first posterior cell. There is no doubt that this species, which is so widely distributed in Africa and southern Africa, is variable to a certain extent, especially in the colour of its pubescence and the intensity of the darker basal infuscation or tinge in the wings of the ♂♂. Even the discal cross vein is not always and constantly situated at one place. In one ♂ from the Karoo the discal cross vein is even at about the middle and not just or even much before middle of discoidal cell as in the majority of specimens. The number of spines on hind femora is also variable. This species is retained in the *nubilus*-section, to which Bezzi referred it, but as there are no other species in the collections before me which can be placed with it, *mollis* at present is the only South African repre-

sentative of this section. Whether it really does come in the same category as the Palaearctic *nubilus* Mik. and *pilirostris* Lw. and the Tropical African species *erythrocerus* Bezz., *neithokris* Jaenn., *parallelus* Bezz., *terminatus* Beck., *femoralis* Bezz., and *melanopus* Bezz. I am not able to state without having seen representatives of these species.

GROUP 2.

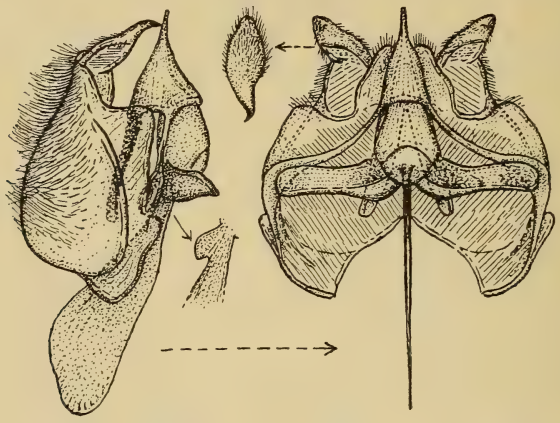
B. globulus Bezz.

(P. 17, Ann. S. Afr. Mus., vol. xviii, 1921.)

A very long series of this species before me shows that it is subject to local and regional variations, ranging from very small individuals to comparatively fairly large specimens. The chief characteristics of this small species are:—

Body appearing humped owing to the longish, shaggy pubescence on anterior half of thorax, is predominantly black above and even below, with the antennae or sometimes only joints 1 and 2, sometimes the face, the greater part of proboscis, the sides of abdomen broadly in ♂♂, the hind margins of apical abdominal segments in ♀♀, the pleural parts to a varying extent (more often only sutural parts), and the legs yellowish to pale yellowish red or reddish; pubescence rather long, dense, and shaggy, varying from silvery whitish on thorax and abdomen above in ♂♂ to sericeous yellowish or even distinctly yellowish in some ♂♂ and in majority of ♀♀, that on pleurae and body below paler and usually more distinctly whitish in both sexes, that on abdomen above in some ♀♀ also less yellowish than on thorax, that on ocellar tubercle, frons, antennae, and face also ranging from straw-coloured whitish to distinctly yellowish; wings rather narrowish and elongate, apparently more so in ♂♂, clear-hyaline in ♀♀ or only very slightly tinged yellowish at extreme base, distinctly and conspicuously tinged yellowish to pale yellowish brown in ♂♂, only the apical part beyond or from apical part of first posterior cell being more hyaline, the yellow also deeper towards base and sometimes very much so in some ♂♂, the veins brownish, becoming paler towards base, with the discal cross vein distinctly before middle of discoidal cell. *Head* with the eyes in ♂♂ separated above by width of ocellar tubercle, in ♀♀ by a space a little less than 3 times as broad as tubercle; eyes usually reddish or purplish red; antennae with joints 1 and 2 combined subequal to or even distinctly shorter than 3, with 3 often darkened,

broadest nearer base, not compressed, rapidly narrowed apically, the apical part or half being slender, often giving the joints a distinct club-shape, with the terminal style slender and straight; proboscis varying in length from 2–4 mm., the labella usually blackened; palps shortish and pallid. *Legs* with about 3–5 slender spines in apical half on hind femora. *Hypopygium* of ♂ (text-fig. 22) with the beaked apical joints having their apices usually bent downwards and then



Text-fig. 22.—Side and ventral views of hypopygium, dorsal view of beaked apical joint, and side view of base of basal strut of ♂ *Bombylius globulus* Bezz.

outwards, and basal strut long and bat-shaped and with a distinct dorsal process at base (shown between the two figures).

Length of body : about 3½–6 mm.

Length of wing : about 4–6½ mm.

Locality.—Namaqualand, Nieuwveld Karoo, South and South Eastern or Little Karoo. (In the Imperial Institute, British, Transvaal, and South African Museums.)

The typical form from Namaqualand usually has the pubescence on body of ♂♂ above silvery or silky whitish, the antennae usually entirely pallid or yellowish, and the reddish on sides of abdomen, especially in ♂♂, very extensive, and the proboscis tends to be shorter. A series of specimens from "Teekloof" in the escarpment between Nieuwveld Karoo and Gouph Karoo differs in having the pubescence in both ♂♂ and ♀♀ yellowish to pale golden yellowish, darkish third antennal joints, and more extensively red or even entirely reddish pleurae and venter. Specimens from Worcester and Matjiesfontein in the British Museum differ from the typical Namaqualand form in having the abdomen in ♂♂ less extensively reddened on the side, and

the apex is also less conspicuously red, the dark third antennal joints appear to be slightly shorter, the pubescence is also more yellowish, and the proboscis is on the whole longer as in the Teekloof series. Finally there is a very small form, $3\frac{1}{2}$–4 mm. long, having yellowish pubescence in both sexes, almost entirely black abdomen in both sexes, black pleurae and apparently slightly longer wings. *B. globulus* is one of the commonest Bombyliids in some parts of Namaqualand and the Karoo. It usually settles on the sand and is also very fond of frequenting the flowers of Mesembryanthemums.

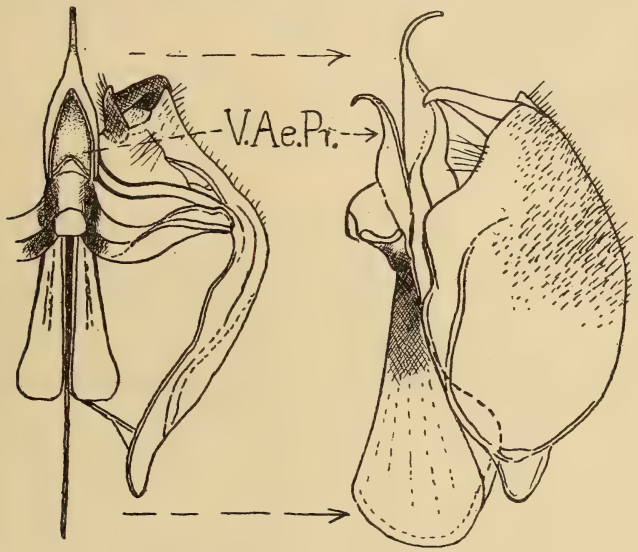
B. eurhinatus Bezz.

(P. 16, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species was described by Bezzi from three ♀♀ in the collection of the South African Museum, one ♀ of which was named *eurhinatus* by Bigot but was not described. In the material before me there are both ♀♀ and ♂♂, the latter as yet undescribed. The characters of this interesting species are as follows: *Body* black, but with the occiput just behind ocellar tubercle in ♀♀, the frons, antennae, face, genae, head below, greater part or entire proboscis, palps, to a certain extent propleural part in both sexes, mesopleural and metapleural infusions especially in ♀♀, the humeral part on each side especially in ♀♀, the post-alar calli and the greater part of scutellum in both sexes, the sides of abdomen very broadly in ♂♂, margins on sides of tergites in some ♀♀, the last tergite in both sexes or in some ♀♀ at least greater part of last tergite, the greater part of venter in ♂♂, the broadish hind margins of most of the sternites in ♀♀ or at least basally or apically, the coxae and legs yellowish to pale reddish yellow, the apical part or apical undersurface of the proboscis and the last tarsal joints may be darkened, the apical part and in ♂♂ the front femora are sometimes darkened basally; pubescence on the whole sparse and shortish on head in both sexes, predominantly yellowish to fulvous yellowish, that towards apex of abdomen both on sides and above becoming paler, more creamy yellowish to whitish, that on thorax in front and on sides in front of wings with reddish or pale purplish reddish gleams in certain lights, that on pleurae with distinct pale pink mauvish gleams especially along middle, that on head below paler and more whitish, that on coxae more pale yellowish, but also with admixed pale pink mauvish elements in some specimens, that (slightly tuft-like) above front coxae and sometimes extending on to sternopleuron gleaming more whitish in some specimens, that on venter pale pink mauvish

or pale reddish mauvish to fulvous, but with the bristly hairs basally gleaming more whitish, with the shortish ocellar bristly hairs, the short bristles on frons laterally, the bristly hairs on first antennal joints, the sparse and short bristles on sides and front part of face, the macrochaetal bristles in front of wings, the mesopleural bristles, the longish post-alar bristles, longish scutellar bristles, and the transverse ones on abdomen gleaming pale reddish yellow, those on abdomen, however, paler and more sericeous yellowish and even paler apically, the short and fine depressed pubescence on head gleaming sericeous yellowish to pale golden yellowish, the scaling on legs gleaming very pale yellowish white to whitish; wings glassy hyaline, but with the base, costal cell, basal half of marginal cell, base of first submarginal cell, more than basal half of first basal cell, and greater part of second basal cell tinged subopaquely brownish, ochreous yellowish to brownish yellow, the base being more or paler yellowish, with an indication of a darker brownish infusion in first basal cell opposite base of third longitudinal cell and darker spot-like infuscations on apical cross veins of first and second basal cells, with the basal comb predominantly yellowish or reddish yellow, with the veins yellowish to pale reddish yellow, becoming slightly darker towards apex of wing, with the discal cross vein much before middle of discoidal cell and apical cross vein of discoidal cell quite as long or even longer than discal cross vein, with the squamae opaquely yellowish to yellowish brown and fringed with yellowish or fulvous hairs; halteres pale yellowish brown, with very pale yellowish knobs in both sexes. *Head* with the eyes above in ♂♂ separated at narrowest part by a space a little narrower than ocellar tubercle, sometimes only as broad as front part of tubercle or even as broad as large front ocellus, very broadly separated in ♀♀ by a space on vertex quite $3\frac{1}{2}$, or even a little more, times as broad as tubercle; antennae with joint 1 from 4–$4\frac{1}{2}$ times as long as 2, with 3 quite $1\frac{1}{2}$ times as long as 1 and 2 combined, almost rod-like, very gradually narrowed apically, ending in a small basal element passing into a short stylar part; face well developed, somewhat prominent, projecting spout-like; proboscis remarkably long, about 6–10 mm. long, usually projecting straight forwards, spinulated below, especially basally; palps distinctly and visibly two-jointed, the apical joint shorter and the basal joint somewhat arcuately curved inwards, its apical part broadened and flattened. *Legs* with some hairs basally below on femora in ♂♂; middle femora with about 1–3 spines in front below and sometimes with 1 spine behind; hind femora with about 7–10 spines below from near base to apex; front tarsi in ♀♀ with joints 2–5

slightly thicker and more hairy than middle tarsi or front ones in ♂♂. *Hypopygium* of ♂ (text-fig. 23) is slightly different from the usual type in that the aedeagus has a ventral aedeagal process (V.Ae.Pr.) which is narrowed apically and projects downwards, the slender apical part of the aedeagus itself is bent upwards and projects much beyond the beaked apical joints, the aedeagal strut on each side above middle part is long and strap-like, projecting visibly basally above lateral



Text-fig. 23.—Half of ventral view and side view of hypopygium of ♂ of *Bombylius eurhinatus* Bezz.

struts; beaked apical joints without visible bristles; basal strut pole-axe shaped. In the Imperial Institute and South African Museum.

Length of body : about 7–12 mm.

Length of wing : about 7½–12½ mm.

Locality.—West Cape Province and Namaqualand.

This species is very easily recognisable by its remarkably long proboscis, basally infuscated wings, reddish antennae, etc. From Macquart's description of *rufus* Macq. (p. 91, Dipt. Exot. ii, Tab. VI, fig. 5, et Tab. VII, fig. 3, 1840) it appears that either *rufus* is very near this species or may even be the same, in which case *eurhinatus* Bezz. would become a synonym of *rufus*. The species appears to be slightly variable in size and in the length of the proboscis. A ♂ specimen from Kasane in Bechuanaland does not differ much from the typical Namaqualand forms, except that the dark brown infusca-

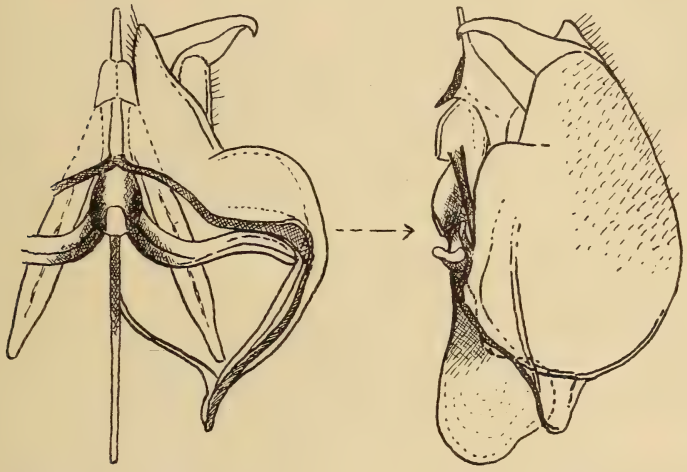
tion basally on the wings is less diffuse, more perceptibly demarcated, the basal half of marginal cell and first submarginal cell being almost hyaline and the infuscations on the cross veins less diffused; spines on hind femora below more numerous (11–12); the erect hair on body is also slightly less golden, more pale yellowish white or creamy whitish above in certain lights, and those at apex of abdomen are also more white, those on face slightly more dense and the bristly hairs on ocellar tubercle and in a tuft on each side of frons anteriorly and even on first antennal joints above slightly darker and more brownish; proboscis is only about 6 mm. long. This specimen was described by me as a distinct variety *bechuanus* Hesse (*see* p. 163, Ann. Trans. Mus., vol. xvii, 1936), and is in the Transvaal Museum.

B. brachyrrhynchus Bezz.

(P. 16, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species is very near *eurhinatus*, differing, however, in having more extensive yellowish infusions on the pleurae, the entire pleurae in both sexes sometimes extensively yellowish and more so than in *eurhinatus*, in having the third antennal joints distinctly darker, usually blackish or very dark reddish brown, the proboscis is more extensively darkened or blackened below and in having the sides of abdomen or at least the hind margins on sides of the tergites even in ♀♀ distinctly and broadly reddish or yellowish; pubescence on frons and face distinctly denser and slightly longer in both sexes, even that on occiput relatively longer, that on abdomen above, in ♀♀ at least, distinctly less dense and shorter, with much fewer erect hairs, composed of transverse rows of gleaming bristles across hind margins and depressed deep golden yellowish fine hairs and scaling, which even on sides of body are not so long as the bristles and as in *eurhinatus*, with the colour of the general pubescence the same as that of *eurhinatus* but on the whole paler and more whitish on pleurae and body below especially on coxal parts, though also with a feeble pinkish mauve tint as in *eurhinatus*, with the bristles on body more gleaming whitish at their apices; wings with the basal darker part much paler yellowish, and this subopaque yellowish practically absent from basal parts of marginal and first submarginal cells, thus less diffuse, with the darker spot-like infuscations also indicated as in *eurhinatus* and with a tendency for first posterior cell to be more acute apically than in *eurhinatus*; head with the eyes above in ♂♂ separated by a space about as broad as front ocellus, the interocular space in ♀♀ relatively broader

than in *eurhinatus* and quite 4–4⅓ times as broad as tubercle, with antennal joint 1 about 4 times as long as 2, but with 3 relatively shorter, only a little longer than, and not 1½ times as long as, 1 and 2 combined, with the proboscis usually more extensively darkened below and very much shorter, only about 3–5 mm. long, with the face on the whole less produced, with the palps as in *eurhinatus* and with the basal joint also arcuately curved inwards, the palps, however, more slender; legs with the last 2 tarsal joints darkened, with 2–3



Text-fig. 24.—Half of ventral view and side view of hypopygium of ♂ *Bombylius brachyrrhynchus* Bezz.

spines on middle femora in front and 1–2 behind, with 5–8 more slender spines on hind femora below and with the front tarsi in ♀♀ also slightly thickened but less conspicuously hairy than in *eurhinatus*. *Hypopygium* of ♂ (text-fig. 24) is different from that of *eurhinatus* in that the apical part of aedeagus is shorter, projecting only slightly beyond the inner apical angles of basal parts; aedeagus with the base compressed, with a ventral aedeagal process in form of a platform-like plate with a small process on each side projecting backwards, with the dorsal basally directed aedeagal strut on each side above middle part elongate, strap-like, projecting basally, but this strut narrower than in *eurhinatus*; basal strut is shorter, broader posteriorly, and more fan-shaped.

In the South African Museum.

Length of body: about 6–8 mm.

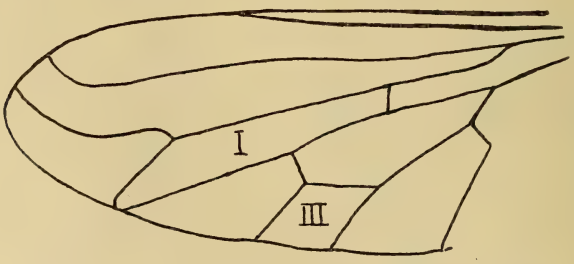
Length of wing: about 7½–9 mm.

Locality.—Namaqualand, Bushmanland, and Gouph Karoo.

Both *eurhinatus* and *brachyrrhynchus* differ from all other species of *Bombylius* in this section in certain salient features, such as the infuscation in basal and costal parts in wings, the presence or indications of spot-like infuscations on the cross veins, and the peculiar structures of the hypopygium. A separate section should really be established to contain them.

1 ♂ *B. rhomboidalis* n. sp.

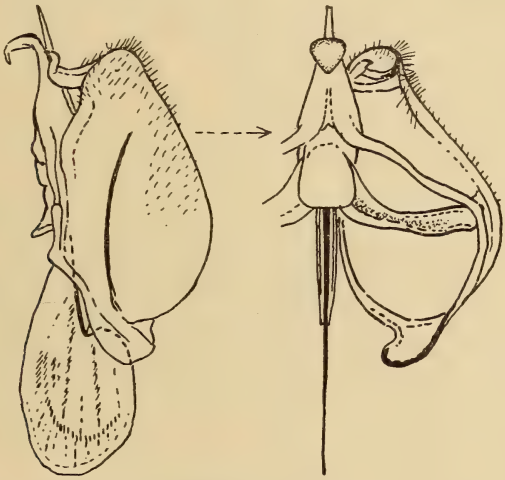
Black, with dull whitish bloom on integument, more evident below; hind margin of scutellum indistinctly, hind margins of abdominal segments above and below and the genital segment reddish, the apical



Text-fig. 25.—Wing of *Bombylius rhomboidalis* n. sp.

margins medially on venter more ivory whitish; legs with the femora, tibiae, and basal halves of tarsi yellowish, the apical parts of tarsi more brownish; pubescence dense on thorax, somewhat sparse and shortish on face, predominantly white, that on thorax above gleaming silvery white, that on abdomen more sericeous whitish, with the depressed pubescence on frons gleaming more sericeous yellowish, the hairs on face also with more sericeous yellowish gleams in certain lights, the pubescence on body below duller and frosty white, with the macrochaetal bristles in front of wings, the post-alar bristles and the scutellar bristles gleaming sericeous yellowish, those on abdomen sericeous white, with the fine depressed hair-like scaling on body above pale sericeous yellowish, but gleaming more brassy yellowish in certain lights and much denser on abdomen above, the depressed pubescence and scaling on venter whitish, the scaling on legs whitish; wings (text-fig. 25) feebly greyish hyaline, with the base and costal cell subopaquely whitish, with the veins brownish, becoming pale yellowish in basal half, the costal and first longitudinal veins yellowish, the veins at extreme base even paler yellowish, the apical cross veins of basal

cells slightly but distinctly darkened, with the basal comb very poorly developed and yellowish, with the discal cross vein at about middle of discoidal cell, with the second longitudinal vein undulating, with the first posterior cell (I) much longer than discoidal cell, attenuated apically, sessile on hind border apically and not stalked, with the third posterior cell (III) rhomboidal, its four sides being more or less equal in length, with the second and fourth posterior cells equal in length on hind border of wing, with the squamae opaquely whitish and white-fringed; halteres very pale yellowish white, with almost white knobs.



TEXT-FIG. 26.—Side view and half of ventral view of hypopygium of ♂ of *Bombylius rhomboidalis* n. sp.

Head with the eyes above separated by a space about as broad as front part of ocellar tubercle for a distance subequal in length to tubercle; face rather short; antennae with joint 1 short, only about 2 times as long as 2, with 3 nearly or quite 2 times as long as 1 and 2 combined, broadest just before middle (view in profile), from there narrowed apically along lower edge, the upper edge being almost straight, the joint thus appearing humped below, ending apically in a conical basal element passing into a bluntish style; proboscis about 3 mm. long. *Legs* without any distinct hairs on femora below, with 1 or 2 spines below on each side near apex on middle femora; hind femora with about 8 pallid spines below from near base to apex; claws curved downwards apically and the pulvilli nearly as long as claws. *Hypopygium* (text-fig. 26) with the basal parts compact and broad, the inner apical angles or processes of basal parts inconspicuous, with

inconspicuous hairs on dorsum, but longer ones around base of beaked joints; beaked apical joints considerably flattened, depressed or hollowed out above, smooth, the pointed apex directed upwards and outwards; aedeagus with the slender apex flattened, straight, projecting much beyond beaked apical joints, the basal part produced apically into a downwardly directed, flattened, tongue-like ventral process, the apical part of which is slightly narrowed and recurved, with the dorsal basally directed strut on each side above middle part flattened, pointed, and visibly projecting basally above lateral struts; lateral struts shoe-horn shaped; basal strut ham-shaped, the dorsal margin more rounded than the ventral one.

Type in the South African Museum.

Length of body: about 7 mm.

Length of wing: about $6\frac{1}{2}$ mm.

Locality.—South West Africa: Kaokoveld; Kamanyab (Mus. Exp., March 1925).

This species differs from related species in this category and all the other species in this group in having the first posterior cell almost opening on the hind border of the wing. There is no stalk apically to this cell. The second posterior cell is rhomboidal. The black antennae, predominantly black scutellum, shorter face, peculiar first posterior cell, and silvery pubescence on thorax separate it from *sessilis* Bezz.

B. sessilis Bezz.

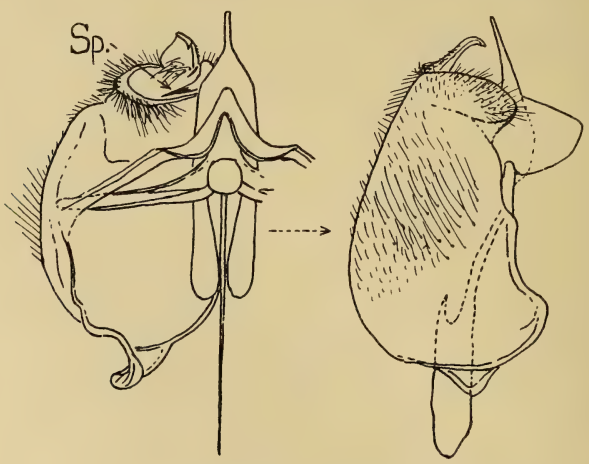
(P. 19, Ann. S. Afr. Mus., vol. xviii, 1921.)

This interesting species was described by Bezzi from a single ♀ from Bushmanland. As I have before me a long series of ♀♀ from S.W. Africa and also a single ♂-specimen from the Karoo, I am able to give a fuller description. As this ♂ shows the characteristic features of this species, I have no doubt that it belongs to this species.

Body black; face and head below, antennal joint 1 in ♀♀, coxae and legs yellowish to pale ochreous yellow, the last 3 or 4 tarsal joints blackish brown, and apices of claws black; scutellum, excluding the narrow black base, and the narrow hind margins of abdominal segments 3 or 4–7 in ♀♀ (broader laterally and even on segment 2), and broader lateral margins of segments in ♂, as well as broader hind margins of venter in both sexes and often infusions on pleurae pale yellowish red to reddish; wings hyaline, but with a faint subopaquely whitish tint in certain lights, the base, costal cell, and basal half of first

basal cell slightly more subopaquely yellowish, the base being more distinctly yellowish, with the veins reddish brown to dark brownish, becoming paler and more yellowish towards base and along first longitudinal vein, especially in ♂, with the basal comb well developed and yellowish, the spines often more brownish, with the first posterior cell markedly elongate and attenuated apically, provided with a very short stalk, slightly longer in ♂, with the discal cross vein much beyond middle of discoidal cell, with the squamae comparatively large, subopaquely yellowish white and white-fringed; halteres yellowish, with whitish knobs; pubescence straw-coloured yellowish to creamy yellowish on body above in ♀♀, slightly more straw-coloured yellowish on thorax in ♂, that on abdomen in ♂ more white and in ♀♀ only more whitish along sides, with the transverse bristles on abdomen in ♀♀ more creamy yellowish, but with sericeous whitish gleams towards their apices, with the short, depressed pubescence on thorax and abdomen above creamy whitish to creamy yellowish and more evident in ♀♀, with the pubescence on frons in ♀♀ deep ochreous yellow, almost white in ♂, that on body below entirely chalky or cretaceous white and comparatively dense, with the bristles in front of wings and on scutellum slightly more pale sericeous yellowish in ♂ and almost whitish in ♀♀, with the pubescence on entire body above and on pleurae appearing considerably paler owing to pale greyish white or whitish integumentary bloom. *Head* markedly broad, distinctly more apparent in ♂; eyes in ♂ very large, the inner margins above in ♂ in contact or contiguous for a little distance, slightly less than length of tubercle, then rapidly diverging apically, with the interocular space in ♀♀ very broad, about 3–3½ times as broad as tubercle on vertex and then gradually diverging apically; frons in ♂ distinctly depressed and only slightly so in ♀♀; face and genae almost entirely bare, short bristly hairs being present only on sides above; antennae with joint 1 short, about 2 times as long as joint 2 in ♂ and not quite 2 times in ♀♀, with joint 3 remarkably broadened in basal half and conspicuously thin and slender in apical half in ♀, more gradually attenuated in ♂ and also less broad basally, often distinctly covered with fine, whitish, depressed, scale-like pubescence above; proboscis about 4–5 mm. long, entirely black and comparatively stout; palps pallid, the apical joint short and directed upwards. *Legs* with white scaling on femora and without long pubescent hairs below; front femora unarmed below; middle ones with about 4–5 small spines below; hind ones with about 7–9 longer spines below from near base to apex; claws slightly longer in ♂, rather rapidly curved downwards apically in both sexes.

Hypopygium of ♂ (text-fig. 27) with the basal parts compact and broad, the dorsum with fine and longish hairs, the inner apical processes of basal parts just visible, with the inner apical part in neck region, bounding the beaked apical joints basally, with a distinct downwardly directed spine or spine-like process (Sp.) on its ventral apical aspect, on each side, of apical part of aedeagus; neck region round base of beaked apical joints slightly produced lip-like outwardly



TEXT-FIG. 27.—Half of ventral view and side view of hypopygium of ♂ of *Bombylius sessilis* Bezz.

and there punctured and covered with short spine-like hairs; beaked apical joints feebly developed, much reduced, flattened, and with inconspicuous spinules above, punctured, and with some hairs below near base, the apex feebly pointed; aedeagus with the apical part projecting beyond basal parts, the basal part produced forwards and downwards into a ventral aedeagal process, slightly carinate centrally in front, with the dorsal aedeagal struts broad and shoe-horn shaped; basal strut very narrow.

Length of body: about 8–12 mm.

Length of wing: about 8–10 mm.

Locality—Central Karoo, Bushmanland, N.W. Cape, and Great Namaqualand (from Aus.). (In the British and S.A. Museums.)

This is a very characteristic and remarkable species, easily recognised by the attenuated and very acute first posterior cell, remarkably broad head, almost bare face and genae and peculiar hypopygium. Like some other species of *Bombyliidae*, it is widely distributed in

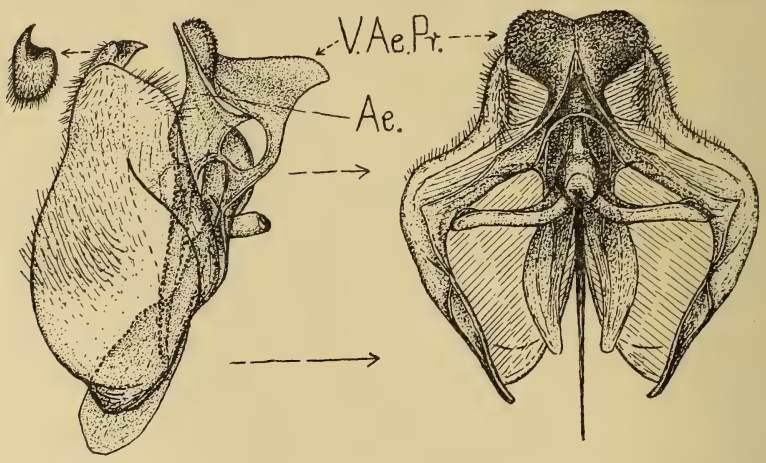
the dry and semi-arid parts of S. Africa and S.W. Africa, somewhat similar to the distribution of *Systoechus xerophilus* n. sp., which is known to parasitise the egg-pods of the brown locust.

B. mundus Lw.

(P. 13, Wien. Ent. Monat., vii, 1863; Bezzi, p. 18, Ann. S. Afr. Mus., vol. xviii, 1921.)

A few specimens in the S. Afr. Museum were referred to *mundus* by Bezzi. One ♀ was labelled as *picticornis* by Bigot. It is very doubtful, indeed, whether these specimens belong to the same species as that described by Loew. Loew's very short description is in this case unsatisfactory and practically useless for purposes of determination. Bezzi's identification also rests mostly on assumption, and at present I can only redescribe this species and retain it provisionally in *mundus*. Black; frons, antennal joints 1 and 2, face, proboscis below, head below, propleural part, a longitudinal band across pleurae, the sutural parts of pleurae or even the greater part of pleurae, the postalar callosities, the scutellum, the hind margins of the abdominal tergites, the sides broadly of abdomen, almost entire apical tergites and the venter pale yellowish red to salmon pinkish, even the entire body below sometimes reddish; legs, including coxae and trochanters, predominantly yellowish or pale reddish yellow, only a spot on trochanters black, the last or two last tarsal joints darkened and apices of claws blackish; pubescence dense, rather shortish in both sexes, with a cropped-off appearance on thorax, more evident in ♂♂, that on occiput even in ♀♀ also shortish, with the transverse bristles on abdomen, even in ♀♀, short and scarcely longer than the pubescence, with the pubescence above pale creamy yellowish to pale golden in ♂♂, gleaming pale golden yellowish even to deeper golden in ♀♀, that on occiput, front part of thorax and towards apical part of abdomen, in some ♂♂ distinctly more sericeous whitish in certain lights, in fact that towards apex of abdomen in ♂♂ distinctly gleaming whitish, that on head and face in ♂♂ also paler and more sericeous whitish or pale sericeous yellowish, more gleaming pale golden yellowish in ♀♀, that on body below in both sexes only very slightly or scarcely paler than above, only duller, even that on venter only slightly paler yellowish, that on sides of abdomen basally slightly richer yellowish than discally, with the stoutish macrochaetal bristles, the post-alar ones, those on scutellum and the transverse ones on abdomen gleaming yellowish in ♂♂, to gleaming deep golden in ♀♀, their apices gleaming more whitish,

those on venter also yellowish to golden; wings hyaline, with the base and costal cell slightly more subopaquely whitish, with the basal comb small and yellowish, the veins usually yellowish, but sometimes more reddish and even brownish in some specimens, all becoming paler basally, with the discal cross vein tending to be nearer middle, slightly beyond or even a good distance beyond middle of discoidal cell, with the first posterior cell markedly acutely pointed apically as



TEXT-FIG. 28.—Side and ventral views of hypopygium and dorsal or apical view of beaked apical joint of ♂ *Bombylius mundus* Lw.

in *sessilis* and provided with a short stalk, with the squamae opaquely pale yellowish, its fringe pale creamy or whitish; halteres pale yellowish, with almost white knobs. *Head* with the eyes above in ♂♂ contiguous for a little distance in front of ocellar tubercle, then at first gradually diverging apically, the interocular space in ♀♀ about 3, or a little more, times as broad as tubercle; antennae with joint 1 about 2 times as long as 2, with 3 quite 1½ times as long as 1 and 2 combined, gradually narrowed apically, the first terminal joint conical and bearing an equally long style; proboscis about 4–5 mm. long; palps yellowish, with short apical joints. *Legs* without any spines on front femora below; middle ones with about 4–6 anteriorly below; hind ones with about 8–10 from near base to apex below; claws slender, curved downwards, and with the pulvilli extending to beyond middle of claws; front tarsi thickened in ♀♀. *Hypopygium* of ♂ (text-fig. 28) with the beaked apical joints comparatively small ending in a sharp downwardly and outwardly directed apical beak, the outer apical angle prominent; aedeagus with the slender apical part pro-

jecting slightly beyond beaked apical joints (when retracted), provided ventrally with a very remarkable ventral aedeagal process, the basal part of which is directed downwards as a vertical, lamellate plate or keel, the base of which is connected on each side with the lateral rami, the apical part, again, is in the shape of a broad, flattened, slightly bilobate, horizontal plate, projecting forwards and hiding the aedeagus and beaked apical joints, its lower surface is roughly shagreened, even minutely spined laterally; dorso-basal aedeagal struts broad, strap-like, but attenuated towards their apices and do not quite reach bases of basal parts; basal strut comparatively narrow and bat-shaped.

In the South African Museum.

Length of body : about 7–9½ mm.

Length of wing : about 7–8 mm.

Locality.—North Namaqualand, Bushmanland, and Karoo.

Easily recognised by the shape of first posterior cell in wing, the extensive red on body, and the yellowish pubescence.

1 ♀ *B. atronotatus* n. sp.

Body with the occiput, eyes, frons, third antennal joints, proboscis, thorax above, parts of pleurae and a central row of large, triangular spots (narrowed apically) on abdomen above, to a certain extent tergites 5–7 and infusions on venter, black, with antennal joints 1 and 2, face and head below, sides of thorax above wings, to a certain extent transversely across base of thorax, the entire scutellum, the humeral part of thorax, propleural part, pteropleural and metapleural infusions, the greater part of abdomen above and hind margins of sternites and the genital segment pale yellowish red or reddish; legs, including coxae, almost entirely yellowish, only apical parts of tarsi more brownish and apices of claws black; pubescence shortish on front part of body, that on thorax above with a slightly cropped-off appearance, that on face also shortish, very pale sericeous yellowish above, that on sides of thorax appearing almost whitish in certain lights, that on disc of thorax and scutellum gleaming more golden, that on abdomen above more gleaming golden yellowish, the macrochaetal bristles, post-alar bristles, scutellar bristles, and those transversely across abdomen deep golden yellowish, the depressed hair-like scaling on body above gleaming pale golden yellowish, but apparently more whitish on thorax in front, the pubescence on head below, pleurae, coxae, in metapleural tuft, sides of abdomen basally and on venter basally more whitish, that on head below, coxae, and lower

parts of pleurae distinctly more frosty whitish, with the scaling on legs whitish but showing yellowish tints in certain lights; wings greyish hyaline, the base, costal cell and to a certain extent first basal cell more subopaquely yellowish whitish, with the basal comb ochreous yellowish, the veins reddish brown, becoming more yellowish basally, with the discal cross vein very much beyond middle and nearer apex of discoidal cell, with the first posterior cell sharply angularly acute apically, provided with a shortish apical stalk, which is much shorter than rest of this vein separating the second submarginal cell from first posterior cell, with the squamae subopaquely yellowish and fringed with whitish hair which gleam sericeous yellowish in certain lights; halteres yellowish, with very pale yellowish knobs. *Head* with the eyes rather large, prominent, and convex, with the interocular space on vertex remarkably narrow, about subequal to combined length of antennal joints 1 and 2, or scarcely a little more than 2 times as broad as ocellar tubercle; frons thus also narrowish, its sides only very gradually diverging apically; face short and shorter than combined length of antennal joints 1 and 2; facial and buccal regions also remarkably narrow; antennae with joint 1 very short, only about $1\frac{1}{2}$ times as long as 2, with 2 elongate and longer than broad, with 3 more or less spindle-shaped, broadest at about basal third, narrowed basally, but more rapidly and attenuately towards apex, ending apically in a conical basal element bearing a short stylar element; proboscis stoutish, about 4 mm. long, its labial part below finely and visibly strigilose; palps short and yellowish. *Legs* with about 3 or 4 spines on each side below on middle femora; hind ones with about 12 spines from near base to apex below, which appear to be alternately long and short; front tarsal joints slightly thickened; claws distinctly rapidly bent down, almost at right angles, nearer apex and the pulvilli just reaching bent down apices of claws.

Type in the South African Museum.

Length of body : about 11 mm.

Length of wing : about $9\frac{1}{2}$ mm.

Locality.—South West Africa : Kaokoveld; Kaross (Mus. Exp., February 1925).

This species is easily recognised by the almost entirely reddish abdomen which has a central row of black triangular spots, by the comparatively narrow interocular space and frons and by the acutely pointed first posterior cell. The narrow interocular space is reminiscent of the ♀ of *mollis*. From other species with much red on the abdomen it differs in this narrow type of interocular space, more

angularly acute first posterior cell and the row of triangular black spots on abdomen above. From an unknown locality Walker (p. 278, List. Dipt. Ins. Brit. Mus., pt. ii, 1849) described a species *inornatus* which, according to his description, has also a series of black spots on the abdomen above. From his vague description it is, however, impossible to identify his species or to state whether *atronotatus* is identical with *inornatus*. In the former species antennal joint 3 is, however, spindle-shaped and not linear, and is distinctly much more than 2 times as long as joint 1, and the knees and tarsi are not piceous, as in Walker's species.

B. impurus Lw.

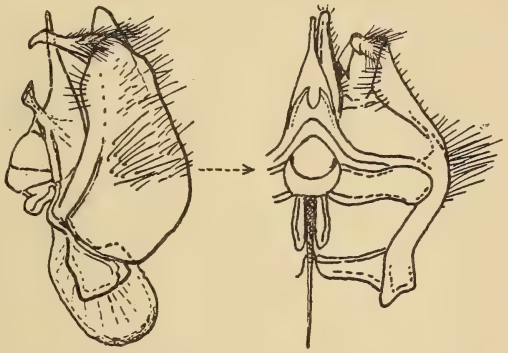
(P. 12, Wien. Ent. Monat., vii, 1863; Bezzi, p. 18, Ann. S. Afr. Mus., vol. xviii, 1921.)

For the identity of this species I have to rely on a specimen labelled as *impurus* Lw. by Bezzi. This ♂-specimen also agrees with Loew's very brief description. As Loew's description may be applicable to other species as well, and as neither Loew nor Bezzi had a series of both ♂♂ and ♀♀ to describe from, it is advisable to redescribe these specimens which I am also provisionally referring to as *impurus*.

Black; antennae also entirely black, but joint 1 in some ♀♀ sometimes slightly dull brownish below or on inner sides; extreme front edge of face sometimes slightly dull brownish or yellowish brown; slightly inflated sides of buccal cavity dull yellowish; palps yellowish brown; extreme base of proboscis below slightly or obscurely reddish, and greater part of scutellum and to a certain extent posterior calli ferruginous red; abdomen entirely black, only hind margins of sternites pallid or yellowish, less so in some specimens; legs yellowish, with the femora blackened to beyond or much beyond the middle in ♂♂ and in some ♀♀, the greater part of the hind ones being dark, in other ♀♀ femora are blackened in at least the basal halves, with the hind tarsi sometimes more brownish than yellowish in both sexes, and with the last two joints of all the tarsi and apices of the claws distinctly black or very dark; pubescence on the whole markedly dense and short, that on thorax above very dense, fine, and shortish, with a cropped-off or shorn-off appearance, more evident in ♂♂, that on abdomen, especially in ♂♂, fine and dense and not markedly long, distinctly longer and slightly more shaggy in ♀♀, with the transverse rows of bristles across hind margins of tergites well developed, dense and close together, only narrowly interrupted discally and even there arranged in more than

one row, only those towards apex in ♀♀ slightly longer than the rest of pubescence, with the pubescence on frons and face also tending to be shortish, that on frons and face in ♂♂ sericeous to almost silvery whitish, that on face in ♀♀ whitish, the bristly hairs and bristles and depressed pubescence on frons in ♀♀ sericeous yellowish to gleaming golden, the pubescence on antennal joint 1 in ♀♀ also yellowish and the longer hairs on joint 1 below in ♂♂ pale sericeous yellowish, the pubescence on body above pale creamy yellowish to pale soft yellowish in ♂♂, more yellowish to gleaming golden yellowish in ♀♀, that on occiput in ♂♂ at least more sericeous whitish and even that on front part of thorax appearing more whitish in certain lights, that on each side just below posterior calli and behind wings whitish, more frosty whitish in ♂♂, that towards apex and on sides of abdomen from segment 4 to apex whitish even in ♀♀ and that on rest of abdomen above in ♂♂ with sericeous whitish gleams, especially discally, in certain lights, that on sides of abdomen basally, in ♀♀ especially, more yellowish even orange yellowish in some specimens, that on body below much paler than above, white on head below, on coxae and pectoral regions and basal part of venter, becoming more creamy yellowish to yellowish along upper parts of pleurae, that in front and just below wing-bases appearing deeper yellowish, that in metapleural tuft almost white again in certain lights, that on venter dull whitish, becoming slightly more straw-coloured yellowish to yellowish apically, with an elongated patch of dense, woolly, or crinkly frosty white hair on each side of venter showing through the hairs, with the macrochaetal bristles, those on posterior calli and across hind margin of scutellum very deep yellowish, reddish, reddish brown to brownish, their tips gleaming sericeous, with the transverse bristles on abdomen from segment 2 to 7 very dark blackish brown to black and pale-tipped, flanked in front of each row by reddish brownish or deeper yellowish bristly hairs and bristles especially in ♀♀, with the bristles on venter sparser but also blackish and pale-tipped; wings rather narrowish, hyaline but with a slight milky whitish tint in certain positions in some specimens, with the basal comb yellowish, yellowish brown to even brownish in some ♀♀, with the veins reddish brown or brownish becoming paler towards base, with the base and costal cell subopaquely very pale yellowish or yellowish white, with the discal cross vein much beyond middle of discoidal cell, with the squamae opaquely very pale yellowish white and fringed with creamy hairs; halteres with yellowish to yellowish brown knobs. *Head* with the eyes in ♂♂ contiguous or touching for a short distance in front of front

ocellus subequal or nearly as long as tubercle; with the interocular space in ♀♀ about 3–3½ times as broad as tubercle; eyes in ♂♂ slightly flattened above and with very coarse facets above; antennae with joint 1 short, about 3, or a little more (even less), times as long as 2, with 3 stoutish, broadest in basal half nearer base, subspindle shaped, gradually narrowed apically and also slightly narrowed at base, with the first terminal joint conical and distinctly visible, ending in the style; proboscis long, about 5–8 mm. long, with the labella elongate; palps well developed and with the apical joints short. *Legs* without any spines on front femora below; middle ones with about 1–3 spines in front below; hind ones with about 9–15 spines below from near base to apex, sometimes irregularly arranged in large ♀♀; claws arcuately curved downwards apically and with the pulvilli just falling short of the middle in both sexes. *Hypopygium* of ♂ (text-fig. 29) with the inner apical angles or processes of basal parts prominent, projecting and flattened; aedeagus straight, its apex sharp, provided at base below with a conical ventral aedeagal process on each side in the form of a downwardly and apically projecting plate, the outer edge of which is carinate and arcuate (side view in text-fig. 29) and the apex of which is rather acute.



Text-fig. 29.—Side view and half of ventral view of hypopygium of ♂ *Bombylius impurus* Lw.

In the Albany and South African Museums.

Length of body: about 9–14 mm.

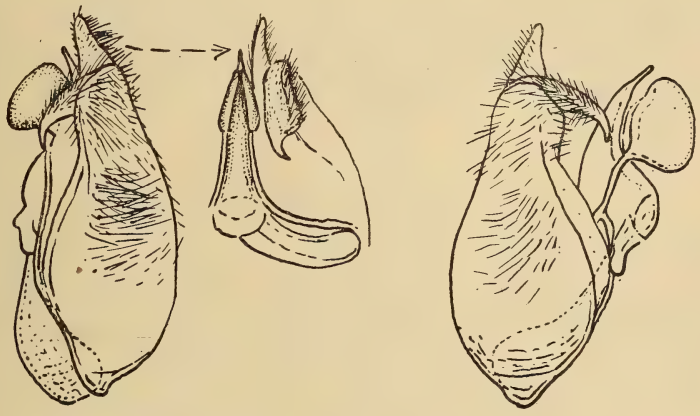
Length of wing: about 8–13 mm.

Locality.—Bushmanland: Jakhals Water (Lightfoot, October 1911). Namaqualand: Kamieskroon (Mus. Exp., September 1930). Nieuwveld Karoo: Victoria West Distr. (Mus. Staff, March 1931). Karoo: Murraysburg Distr. (Mus. Staff, March 1931). N.E. Karoo: Aliwal North (Leppan, April 1904). O.F.S. (according to Loew). S. Karoo: Montagu (Barnard, October 1919). E. Karoo: Grahamstown Region.

2 ♂♂ 9 ♀♀ *B. tinctipennis* n. sp.

Body black; antennal joint 1 in ♀, face and head below in ♀, extreme base of proboscis, greater part of scutellum (excepting the black base and hind border) yellowish red, reddish, or ferruginous red; antennal joint 1, face and head below in ♂ very dark reddish brown to blackish; legs reddish yellow to yellowish, the coxae obscure reddish to blackish, the bases of the femora in ♂ distinctly blackened, the last 2 tarsal joints blackened and the last one entirely black; pubescence above comparatively long, dense, and shaggy, especially on the abdomen, in both sexes, pale sericeous yellow, yellow, deep yellow to deep golden, almost orange golden, often with a slight brownish yellow tint in certain lights, that on thorax in front in ♂ slightly paler sericeous yellowish, that towards apex of abdomen scarcely paler than on rest of body, that on head coloured like rest of body above, with the macrochaetae on thorax and bristly hairs transversely on abdomen slightly longer than the long recumbent hair and scarcely darker, or only very slightly deeper golden yellowish, than rest of hair, with the pubescence on body below not much paler than that above, appearing paler in specimens which are also paler above, with, however, the hair on head below, just above coxae, sometimes on the pectus and at base of venter distinctly more whitish, especially in ♂, the metapleural tuft and upper parts of pleurae inclining to colour of body above, with the short depressed hair on body above sparse and paler yellowish, that on frons in ♀ slightly more yellowish; wings distinctly and comparatively deeply tinged mauvish brown, slightly deeper in ♂ and only the apical and posterior parts in both sexes slightly less deeply tinged, with the base, costal cell, basal half of first basal cell and even base of second basal cell more subopaquely yellowish brown, with the veins dark reddish brown, becoming more reddish along chief longitudinal veins and towards base, with the basal comb well developed, yellowish to deep yellowish or pale reddish yellow, with the squamae opaquely brownish, pale yellowish haired and with a fairly conspicuous tuft of pubescent hair at base of wings above, with the discal cross vein much beyond the middle of discoidal cell and with the second longitudinal vein comparatively straight; halteres yellowish to pale reddish brown, with pale yellowish brown to pale brownish knobs. *Head* with the eyes in ♂ separated above by width of ocellar tubercle, in ♀ a little more than 3 to even 3½ times as broad as tubercle; antennae with joint 1 a little more than 4, to almost 5, times as long as joint 2, with joint 3 comparatively slender and rod-like, more so

in ♂, not straight, but gradually curved; proboscis comparatively stout, about 3½–5 mm. long; palps yellowish, with the shorter apical joint darkened and with some very long hairs on sides of joint 1. *Legs* with comparatively dense, but fine, hairs on femora below; front femora unarmed; middle ones with about 1–3 fairly long spines below; hind ones with about 6–12 long spines below, the basal ones often exceptionally long, often irregularly in 2 rows towards base and with about 3–6 spines in apical part on outer upper aspect; claws



(*a*) (*b*)

Text-fig. 30.—(*a*) Side view and part of ventral view of hypopygium of ♂ *Bombylius tinctipennis* n. sp. (*b*) Side view of that of ♂ *Bombylius tinctipennis* var. *thornei* n.

gradually curved downwards and with the pulvilli extending to middle or a little beyond middle of claws. *Hypopygium* of ♂ (text-fig. 30, *a*) with the inner apical angle or process of basal parts prominently produced and elongate; beaked apical joints as shown in figure, slightly depressed above and with a crest of longish hairs, more prominent along outer dorsal part, the beak directed slightly downwards and outwards; aedeagus with a prominent ventral, vertical, flattened, shell-like process on each side, convergent anteriorly and there fused under apical part of aedeagus, continuous posteriorly with the lateral ramus, on each side, to basal parts; basal strut bat-shaped.

Types in the British Museum, paratypes in the Transvaal and South African Museums.

Length of body: about 7–9½ mm.

Length of wing: about 8–10½ mm.

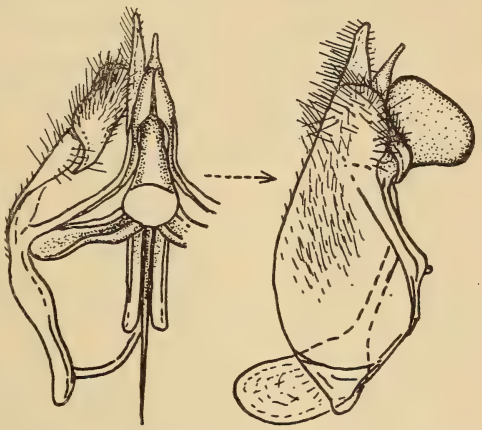
Locality. — S.W. Cape Province: Cape Town; Lion's Head (Turner, August 1920) (Types); Stellenbosch (Theron, Brauns, and Lightfoot); Malmesbury (Brauns, October 1926); Hottentot's Holland Mts. (Barnard, 4000 feet alt., January 1933). S. Karoo: Swartberg Pass (Barnard, 5000–6000 feet alt., November 1929).

An easily recognisable species by the mauvishly tinged wings, dense and long yellowish to deep golden pubescence, slender and rod-like third antennal joints, and long spines on hind femora. There is no doubt that the species shows colour variations and slight structural aberrations in the various areas of its distribution, and quite a distinct variety seems to occur along the Western Coastal region up to Namaqualand and in Northern Karoo, viz.:—

10 ♂♂ 28 ♀♀ *B. tinctipennis* var. *thornei* n.

This variety is without doubt the western, north western, and northern representative of *tinctipennis* s.str., from which it is superficially almost indistinguishable. It differs, on the whole, in being smaller and less bulky; head with the face and head below dark or blackish in both sexes, with antennal joint 1 darker, less vividly reddish even in ♀♀, with more black above, even entirely black, also distinctly more slender and even comparatively longer, quite 6 times as long as joint 2, with joint 3 relatively shorter, less rod-like, and more attenuated apically and slightly straighter, with the proboscis usually entirely black, at least less constantly reddish at base below, less stout and about 3–4 mm. long, with the interocular space in ♀ slightly broader, often quite 4 times as broad as tubercle, with the palps entirely dark; pubescence on body above having a slightly darker and more yellowish brown tint, that on antennae, face and genae distinctly more golden brownish in both sexes, that on abdomen not entirely golden, but with distinct transverse rows of darker, sometimes very dark blackish brown to black, bristly hairs across hind margins of segments in both sexes, that on body below slightly darker and less pale, the whitish hair above coxae less evident and that on pectus even more yellowish and with numerous dark or blackish hairs on venter as well; wings tinged to the same extent, but in ♀ slightly less so towards base than in typical form, without or with only a few and insignificant and shorter pubescent hairs above basally on middle vein, with the first posterior cell tending to be even more subacute apically, with the squamae even darker opaquely brownish; legs with

the coxae and trochanters darker and more often black, the femora more distinctly and extensively blackened basally even in ♀♀, and the front and middle ones in ♂ blackened to at least the middle and even beyond, with the tarsi also more extensively darkened apically, with about 2–4 spines on middle femora below and about 5–9 on hind ones below. *Hypopygium* of ♂ (text-fig. 30, *b* and fig. 31) scarcely different from that of *tinctipennis* s.str. (cf. text-fig. 30, *a*), with the lateral struts, however, slightly narrower, the basal strut also narrower.



Text-fig. 31.—Half of ventral view and side view of hypopygium of ♂ *Bombylius tinctipennis* var. *thornei* n.

Types in the South African Museum.

Length of body: about 6–8½ mm.

Length of wing: about 7–9 mm.

Locality.—Namaqualand: Kamieskroon (Mus. Exp., September 1930) (Types); Garies (Mus. Exp., June 1930). Western Cape Province: Citrusdal; Modderfontein (Brauns, 15/10/28). N. Karoo: Venterstad and Burghersdorp (Mus. Staff, October 1935). Nieuwveld Karoo: Beaufort West Distr. (Mus. Staff, October 1935).

1 ♂ *B. turneri* n. sp.

This species resembles *tinctipennis*, with which it may be compared. From the ♂ of *tinctipennis* it differs in being smaller, narrower, and less bulky; head with the front part of face and anterior lower part of head below paler and more yellowish brown, with the eyes separated above by width of front part of tubercle, with the first antennal joints comparatively shorter, only about 4 times as long as joint 2, with joint 3 less rod-like, slightly more thickened basally, with the proboscis slender, even slightly more reddened below towards base, about 4½ mm. long, with the pubescence on antennae and face much shorter and less shaggy; wings entirely greyish hyaline, not deeply tinged mauvish brown, only the costal cell and base being slightly more subopaquely whitish, with the veins dark blackish brown, becoming

paler towards base and along main longitudinal veins, with the discal cross vein also much beyond middle of discoidal cell, with the basal comb distinctly smaller; scutellum with the red less extensive, only present discally towards hind part; pubescence on body slightly more vividly golden when seen from side, apparently slightly shorter on occiput and abdomen, that on abdomen not entirely yellow, but with conspicuous and numerous black bristles across hind margins, more evident towards apex, with the rest of the abdominal hair becoming distinctly paler laterally and towards apex, that on head and thorax below distinctly more extensively white, even the metapleural tuft being more whitish; legs with the pubescent hairs on femora below distinctly shorter and less dense, with the front and middle femora more extensively blackened basally to about the middle, the hind ones also blackened at base, with the tarsi more extensively darkened, especially the hind ones, with only 1 spine on middle ones below and with about 7–8 shorter spines on hind femora below and without any lateral spines apically on outer aspect. *Hypopygium* (text-fig. 32) is, however, entirely different from that of *tinctipennis* (cf. text-figs. 30 and 31), with the beaked apical joints elongate and slender, longer and more slender than in *tinctipennis*; aedeagus without any ventral process, with the dorsal basally directed aedeagal struts short; basal strut bat-shaped.



Text-fig. 32.—Side view of hypopygium and dorsal view of beaked apical joint of ♂ *Bombylius turneri* n. sp.

Type in the British Museum.

Length of body: about 7 mm.

Length of wing: about 7 mm.

Locality.—S.W. Cape Province : Cape Peninsula ; Camps Bay (Turner, 1/20/1920).

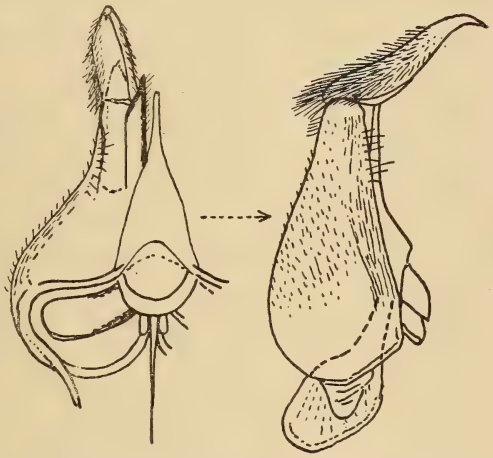
B. marginellus Bezz.

(P. 20, Ann. S. Afr. Mus., vol. xviii, 1921.)

In addition to the ♀-type, from Matjiesfontein, there are a ♀ and what I take to be the undescribed ♂ before me. Bezzi's description may be supplemented by the following fuller description:—

Body black; scutellum reddish, but with a large basal black spot

and black hind part, especially in ♀; antennal joint 1 reddish, somewhat linearly darkened above in ♀, entirely dark above in ♂; face and head below dark reddish brown; legs pale ochreous yellow to pale reddish yellow, the extreme bases of femora darkened, more brownish, especially in ♂, with the last 2 tarsal joints also darkened; proboscis distinctly reddish brown below; pubescence above, from side, creamy yellowish to pale yellowish on thorax in ♀, much paler and more creamy in ♂, becoming more whitish towards occiput and in front, that on abdomen above very pale creamy whitish to yellowish in ♂ and also slightly paler than on thorax in ♀, even paler apically, that on thorax below straw-coloured yellowish to pale yellowish white, that along middle parts of pleurae above coxae whitish, the metapleural tuft straw-coloured whitish to whitish, the hair on pectus straw-coloured yellowish, that on venter whitish at base and distinctly yellowish on rest, that on sides of venter more creamy, with the dense, short, depressed pubescence on sides of venter, especially in ♂, showing through as snow white hair, with the hairs on head above in ♀ pale yellowish and with a slight rufous tint in certain lights, that on face and genae comparatively dense, longish, and yellowish, more creamy whitish in ♂, with the macrochaetal bristles and also bristles on upper part of mesopleuron in ♀, the posterior callar bristles and those on scutellum pale rufous yellow in ♀, more pale yellowish in ♂, with the long transverse bristles across hind margins of abdomen very dark reddish brown in ♀ and even blackish in ♂, more conspicuous and longer laterally and towards apex in both sexes; wings greyish hyaline, with a distinct subopaque tint, with the base, costal cell, and basal half of first basal cell more subopaquely pale yellowish brown, the base being more yellowish, with the veins reddish brown, becoming paler and more reddish along main longitudinal veins, with the basal comb pale yellowish in ♂ and slightly more reddish yellow in ♀, with



Text-fig. 33.—Half of ventral view and side view of hypopygium of ♂ *Bombylius marginellus* Bezz.

the opaquely whitish squamae margined blackish brown and fringed pale yellowish to whitish or creamy; halteres yellowish, with whitish knobs. *Head* with the eyes in ♂ separated above, at narrowest part, by front part of ocellar tubercle, with the space in ♀ about 3½ times as broad as tubercle; antennae with joint 1 slender, about 4, or even a little more, times as long as 2, with joint 3 almost rod-like, only slightly, or scarcely, broader basally and more so in ♂; proboscis about 4 mm. long; palps with some long hairs on basal joints, the apical joints darker. *Legs* with longish pubescent hairs basally below on femora in both sexes and with the front femora unarmed below; middle ones with about 2–3 spines below; hind ones with about 6–8 comparatively long spines below from near base to apex. *Hypopygium* of ♂ (text-fig. 33) with the basal parts inconspicuously haired, the side feebly striate, the inner apical angles only slightly projecting; beaked apical joints comparatively elongate, the apex acutely pointed downwards; aedeagus with the very slender apical part not reaching inner apical angles, feebly bent upwards apically, without a ventral aedeagal process; lateral struts broad and flattened; basal strut comparatively small, racket-shaped, and projecting a little beyond base of basal parts.

Length of body: about 8–9 mm.

Length of wing: about 8–9 mm.

Locality.—S. Karoo: Matjiesfontein and Hopefield. (In the South African Museum.)

B. fucatus Bezz.

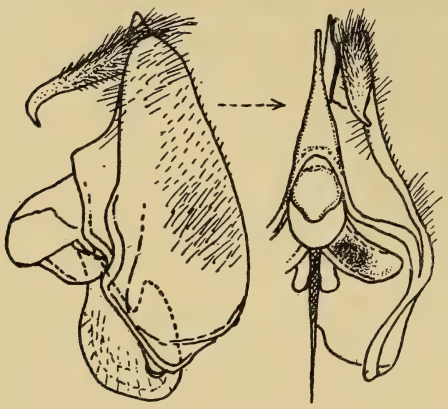
(In key, p. 14, Ann. S. Afr. Mus., vol. xviii, 1921; note on p. 72, Broteria (Ser. Zool.), vol. xx, Fasc. II, 1922; in key, p. 47, The Bombyliidae of the Ethiopian Region, 1924.)

Nowhere, except in keys and notes, does Bezzi give any description of this species. In "Broteria" (loc. cit.) he states that he intended to describe it in his work "No. 4" on the *Bombyliidae* of the Hungarian Museum, and, moreover, states that the species is represented in the Budapest Museum and in his own private collections. Apart from the vague references to it in keys (loc. cit.), this species appears to me to exist only as a name, and its intended description has never been published. The Transvaal Museum is in possession of 4 ♀♀ and 1 ♂, of which 3 ♀♀ and the ♂ were formerly in the possession of the late Dr. Brauns, and which he collected at Willowmore. The ♂ is labelled "*38 Bezzi*" and also as "*Bombylius fucatus*" in Brauns' handwriting.

The 3 ♀♀ were included in this species but were unlabelled, except for one specimen which had a small label "*Bezzi I. 5.*" The other ♀ from "Bloemfontein, 25/3/21," collected by H. E. Irving, was formerly in possession of Mr. Munro of the Government Entomological Department and is labelled "*Bombylius fucatus* Bezz." This latter ♀ is, however, entirely specifically different from the ♂-specimen ("*38 Bezzi*") and does not run down in Bezzi's keys to *fucatus*. It is in fact a separate species, which is described in this paper as *transitus* n. sp. It has distinct very broad red in the sides of the abdomen and an apically acute first posterior cell. The small ♀, labelled "*Bezzi I. 5.*" and placed with *fucatus* (♂ "*38 Bezzi*"), is also a different species and is in fact a ♀ of *paterculus* Walk., as defined by Bezzi and myself in this paper. We are thus left with 2 ♀♀ and the labelled ♂ ("*38 Bezzi*"), which obviously belong to the same species. In addition, there are also present 2 other ♀♀ from Willowmore and 2 ♀♀ in the British Museum which are also referable to this species. It is thus evident that Bezzi included no less than 3 specifically different species in *fucatus*. In view of this the only procedure is either to take the labelled ♀-specimen from Bloemfontein as the typical *fucatus*, in which case my *transitus* n. sp. becomes a synonym, or to take the ♂-specimen and ♀♀ from Brauns' collection as representing *fucatus*. As Bezzi himself refers to this species as coming from Willowmore (Broteria, loc. cit.), and as the ♂ was labelled by Bezzi as "*38 Bezzi*," it appears more than likely that these specimens constitute part of the original batch forwarded to Bezzi. These specimens are thus taken as representing *fucatus* Bezz. and as having the following characters:—

Body black, with antennal joint 1 and to a certain extent 2 in ♀♀, the face, genae, and head below in ♀♀, the narrow front margin of face and anterior part of head below in ♂, the base of proboscis below, the greater part of scutellum in both sexes, sometimes the narrow hind margins of tergites 4–7 or 5–7 in ♀♀, the hind margins of the sternites and sometimes the sutural parts of the pleurae in ♀♀, yellowish red or reddish, with the antennae in ♂ entirely dark or black; legs, including coxae, almost entirely yellowish in both sexes, the bases of femora in ♂ slightly darkened, only the last 2 tarsal joints darkened and apical parts of claws black; pubescence rather longish and shaggy, without a shorn-off appearance on thorax even in ♂, that on antennae and face in ♂ sericeous yellowish and pale sericeous yellowish to golden yellowish in ♀♀, that on occiput and thorax in front in ♂ gleaming sericeous and almost silvery whitish, distinctly more yellowish and sericeous yellowish to even pale golden in ♀♀, that on disc of thorax,

scutellum, and abdomen above distinctly deeper sericeous yellowish in both sexes but slightly paler sericeous yellowish in ♂ and in some ♀♀ even with more golden gleams, that on head below, body below, in metapleural tuft, and basally on each side of venter frosty whitish in both sexes, contrasting with that on body above, with the bristly elements on frons, on mesopleuron in front of wings, the macrochaetal bristles, those on post-alar calli and on scutellum in ♀♀ gleaming deep sericeous yellowish, golden yellowish to even fulvous golden, with the transverse bristles across hind margins of abdomen above distinctly darker, more dark brownish, becoming even dark blackish brown towards apex of abdomen, the apices of individual bristles gleaming whitish in certain lights, with the fine, depressed, hair-like scaling on abdomen above straw-coloured yellowish in ♂, more sericeous yellowish to pale brassy yellowish in ♀♀, that on frons in ♀♀ slightly gleaming whitish to sericeous yellowish, with the scaling on legs whitish; wings shining and with a distinct whitish subopacity, the base and costal cell more subopaquely pale yellowish whitish, with the basal comb creamy yellowish, the veins brownish or dark brownish, becoming more yellowish basally and along first longitudinal vein, with the discal cross vein beyond middle of discoidal cell, with the squamae opaquely pale yellowish white to yellowish, narrowly dark-bordered and fringed with white hair; halteres yellowish, with ivory whitish knobs. *Head* with the eyes in ♂ touching above just in front of ocellar tubercle, then gradually diverging for a little distance before rapidly diverging apically, the eyes slightly flattened above, with the interocular space in ♀♀ on vertex about $3\frac{1}{2}$–4 times as broad as ocellar tubercle; face a little longer than combined length of antennal joints 1 and 2; antennae with joint 1 about 3, or a little more, times as long as 2, with 2 rather transverse, with 3 about, or a little less than, $1\frac{1}{2}$ times as long as 1 and 2 combined, rod-like, cylindrical, and only gradually tapering apically, ending in a very minute basal element bearing a slender style,



TEXT-FIG. 34.—Side view and half of ventral view of hypopygium of ♂ *Bombylius fucatus* Bezz.

directed upwards; proboscis about 3–4 mm. long. *Legs* with longish hairs on femora below, with about 2–3 spines in apical half below on middle ones; hind femora with about 5–9 spines below from near base to apex below; claws sickle-shaped, gradually and arcuately curved, the pulvilli not reaching bent down apices of claws; front tarsal joints in ♀♀ slightly thickened and hairy. *Hypopygium* of ♂ (text-fig. 34) with the inner apical parts of basal parts projecting slightly; beaked apical joints elongate, narrowish, and sharply pointed apically, the apices bent downwards; aedeagus without any ventral process below; basal strut with a deep sinuosity along its dorsal edge.

In the Transvaal, British, and South African Museums.

Length of body: about 6–7½ mm.

Length of wing: about 6–8 mm.

Locality.—Little Karoo and South Cape Province.

The species is easily recognised by the dark transverse bristles on abdomen and the slightly whitish subopaque wings. From other species with darkish bristles it is separated by the characters given in the key.

2 ♂♂ 7 ♀♀ *B. imitator* n. sp.

Body black, with the anterior part of frons, the entire face, genae, and head below, antennal joints 1 and 2, base of proboscis below, greater part of scutellum, hind margins of tergites 3–7 or at least 5–7, hind margins of sternites and a longitudinal band along pleurae above coxae reddish or reddish yellow; legs, including coxae, entirely yellowish, only a spot on trochanters, the last 2 tarsal joints and apices of claws black; pubescence rather longish, dense and shaggy, longer on abdomen, that on occiput and thorax above gleaming sericeous whitish in ♂♂ and also in some ♀♀, but other ♀♀ with a more sericeous yellowish to even more pale golden sheen, that on disc of thorax, on scutellum, and on abdomen in ♂♂ gleaming slightly more sericeous yellowish than in front, that on abdomen discally even more distinct, more distinctly and deeper sericeous yellowish in ♀♀, even that on sides of thorax above wings in ♀♀ sericeous yellowish, that on sides of abdomen in some ♀♀ in certain lights appearing deep sericeous yellowish, that on head below, body below, in metapleural tuft and at base of venter laterally contrastingly frosty whitish, that towards apex of abdomen in ♂♂ also apparently more whitish, that on antennae and face sericeous whitish in ♂♂, sericeous whitish to sericeous yellowish, and even pale golden in ♀♀, with the frontal bristles, the macrochaetal bristles, those on post-alar calli and on scutellum

gleaming sericeous yellowish to golden yellowish in ♀♀, with the transverse bristles across abdomen deeper golden to reddish or brownish golden, becoming even more blackish brown towards apex in some specimens, those discally above in basal half at least tending to be paler and more yellowish, with the bristly elements on each side of venter apically also dark, especially in ♀♀, with the fine, depressed hair-like scaling on frons in ♀♀ gleaming sericeous yellowish, that on abdomen above more whitish to pale yellowish, the scaling on legs whitish; wings vitreous hyaline, iridescent, but with a very feeble and almost imperceptible subopacity in certain lights, with the base costal cell, and basal half of first basal cell subopaquely whitish to pale yellowish whitish, with the basal comb yellowish, the veins dark brownish, becoming yellowish at base, with the discal cross vein a little to quite a good distance beyond middle of discoidal cell, with the squamae subopaquely pale yellowish or pellucid yellowish, narrowly dark-bordered and fringed with whitish hair; halteres yellowish, with almost whitish knobs. *Head* with the eyes in ♂♂ separated above by a space about as broad as front part of ocellar tubercle, with the interocular space in ♀♀ quite $3\frac{1}{2}$, or a little more, times as broad as tubercle; face a little longer than combined length of antennal joints 1 and 2; antennae with joint 1 about 3, or very little more, times as long as 2, with 2 shortish and transverse, with 3 about $1\frac{1}{2}$, or a little less, times as long as 1 and 2 combined, gradually narrowed apically, the basal part in some ♀♀ slightly thicker than in ♂♂ where the joint is almost rod-like, ending apically in a small conical element passing into a short style; proboscis about 3–4 mm. long. *Legs* with sparse but longish hairs on femora below in ♂♂ especially, with 2–3 spines on middle femora in front; hind femora with about 6–8 spines below from near base to apex; claws slender, gradually and arcuately curved, the pulvilli not reaching their bent down apices; front tarsal joints in ♀♀ only slightly thickened. *Hypopygium* of ♂ much like that of *fucatus* (cf. text-fig. 34) but with much fewer and finer hairs above on basal parts; beaked apical joints also elongate and narrowish, but slightly shorter than in *fucatus*; aedeagus slightly longer and the apex extending slightly beyond apices of inner apical angles of basal parts; basal strut slightly shorter, less broad and less deep and angularly incised along its dorsal edge.

Types in the South African Museum.

Length of body: about 6–8 mm.

Length of wing: about 6–8 mm.

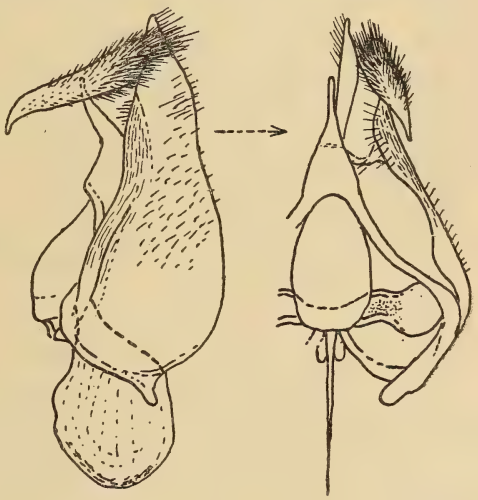
Locality.—Namaqualand: Garies Distr.; Klip Vlei (Mus. Exp.,

November 1931) (Types); Namaqualand: Bowesdorp (Mus. Exp., November 1931).

This species is very near *fucatus* Bezz., from which it may be distinguished by the much clearer and more hyaline wings, the fewer or less dark blackish brown bristly elements on abdomen, more conspicuous red on abdomen and on pleurae, and distinctly more broadly separated eyes in ♂♂.

1 ♂ *B. aurimystax* n. sp.

Black; antennal joints 1 and 2, face, base of proboscis below, greater part of scutellum and narrow hind margins of venter reddish; legs predominantly yellowish, the apical part of tarsi blackened and apices of claws black; pubescence dense, that on abdomen somewhat shaggy and that on disc of thorax appearing slightly cropped off, that on occiput, thorax in front and sides very pale sericeous whitish, appearing whiter in certain lights, that on disc of thorax with a slightly more sericeous yellowish gleam, that on abdomen whitish or sericeous whitish, without any dark bristles on sides or apically, that on frons, antennal joint 1, face and genae sericeous yellowish, becoming more golden yellowish on frons, apical part of face and on genae, the mystax, in fact, markedly gleaming golden with even a touch of orange, that on head below and body below more obviously white than above, that on venter very pale yellowish, whiter on sides but even slightly ochreous apically; wings greyish hyaline, with a slight yellowish tinge which becomes more evident and distinct basally, the base, costal cell, with the basal comb pale yellowish, the veins yellowish brown, becoming more yellowish towards base, with the discal cross vein just at about middle of discoidal cell, with the squamae opaquely



Text-fig. 35.—Side view and half of ventral view of hypopygium of ♂ *Bombylius aurimystax* n. sp.

yellowish, brownish-bordered, and fringed with white hair; halteres yellowish, with almost whitish knobs. *Head* with the inner margins of eyes above subcontiguous for a short distance subequal to length of tubercle, the narrow space narrower than front ocellus; frons slightly depressed centrally; face tumidly prominent and produced; antennae with joint 1 about 3 times as long as 2, with 3 broadest just before middle, gradually narrowed apically, and also slightly narrowed at base; proboscis about $3\frac{1}{2}$ mm. long. *Legs* with longish hairs basally on the femora, without any spines below on front femora; middle ones with about 2 spines in front in apical part; hind femora with about 9 spines from near base to apex; claws slender, gradually curved downwards apically, with the pulvilli not reaching apices of claws. *Hypopygium* (text-fig. 35) like that of *latipectus*, the long and slender beaked apical joints, however, relatively slightly longer; aedeagus slightly shorter and the apical part more slender and much shorter; basal strut slightly narrower, longer, and projecting considerably beyond bases of basal parts.

Type in the South African Museum.

Length of body: about 9 mm.

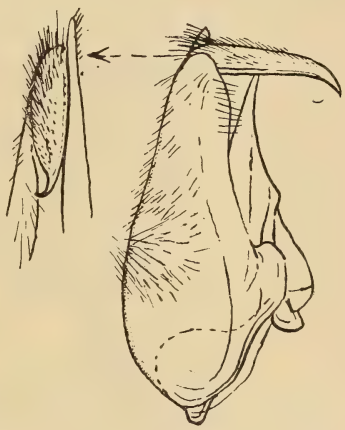
Length of wing: about 9 mm.

Locality.—Namaqualand: Garies (Mus. Exp., June 1930).

2 ♂♂ *B. pseudopsis* n. sp.

Body predominantly black, with antennal joint 1 yellowish, but darkened above, with only front part of face tending to be yellowish, the head below black or very dark, with the base of proboscis below yellowish, with the hinder part or half of scutellum ferruginous reddish and hind margins of sternites also reddish; legs predominantly yellowish, but bases of front and middle femora blackish or darkened and last two tarsal joints and apical part of claws also darkened; pubescence dense, tending to be shortish and with a slightly shorn off appearance on thorax, that on first antennal joints and face rather dense, that on body above predominantly pale, gleaming sericeous whitish and with scarcely any touch of sericeous yellowish, that on abdomen also very pale, almost whitish, that towards apex even more apparently whitish, that on sides towards base with a more straw-coloured yellowish tint to even creamy yellowish, that on head below, pleurae, pectus, and sides of venter basally frosty whitish, that in front of wings tinted slightly more yellowish in certain lights, that on face distinctly more yellowish and gleaming sericeous yellowish to very

pale golden, that on venter laterally also more yellowish, with some or a few or even without any darker and more brownish bristly elements transversely across abdomen, especially towards apex on side; wings greyish hyaline, with the basal two-thirds distinctly, though faintly, tinged yellowish, the base and costal cell being more subopaquely yellowish whitish, with the basal comb ochreous yellowish, the veins brownish but becoming yellowish towards base, with the discal cross vein tending to be at about middle of discoidal cell, with the squamae opaquely yellowish, narrowly dark-bordered and fringed with whitish hair; halteres yellowish, with very pale and almost whitish knobs. *Head* with the eyes subcontiguous above, the narrow space scarcely as broad as front ocellus, the length of space even shorter than length of ocellar tubercle; face rather conically prominent, much as in *aurimystax*, distinctly longer than combined length of antennal joints 1 and 2; antennae with joint 1 quite 3 times as long as 2, with joint 2 transverse, with 3 about, or even a little more than, $1\frac{1}{2}$ times as long as 1 and 2 combined, slender and rod-like, gradually tapering apically, ending in a small conical terminal element bearing a short style; proboscis about $3\frac{1}{2}$ mm. long. *Legs* with fine and longish white hairs on femora below, with about 7–9 spines on hind ones below; claws gradually and arcuately curved, the pulvilli not reaching their bent-down apices. *Hypopygium* (text-fig. 36) very much like that of *aurimystax*, but with the aedeagus not so bent downwards apically and with the apices of beaked apical joints more bent downwards and with a smaller basal strut.



Text-fig. 36.—Dorsal view of beaked apical joint and side view of hypopygium of ♂ *Bombylius pseudopsis* n. sp.

Type in the South African Museum and paratype in the Imperial Institute.

Length of body : about $8\frac{1}{2}$ mm.

Length of wing : about 8 mm.

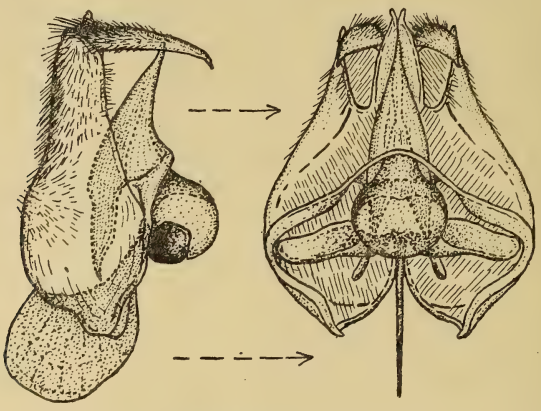
Locality.—Namaqualand: Bowesdorp (Mus. Exp., November 1931) (Type). Karoo: Graaff-Reinet (Ogilvie, 24–27/10/31).

Almost inseparable from *aurimystax*, but differing, however, in not

having subspindle-shaped third antennal joints, in having a darker head below, and in having a slightly less prominent face. From *icteroglaenus* it differs in having a longer face, much paler pubescence, and much fewer dark hairs on abdomen and more gradually curved claws.

1 ♂ *B. icteroglaenus* n. sp.

Body black, with the first antennal joints yellowish, but darkened above, the face dark, but front margin or front part more brownish,



Text-fig. 37.—Side and ventral views of hypopygium of ♂ of *Bombylius icteroglaenus* n. sp.

the head below also obscurely dark brownish, with the base of proboscis below also obscure reddish brown, the hinder half of scutellum ferruginous reddish and hind margins of sternites yellowish; legs predominantly yellowish, the bases of front and middle femora slightly darkened or blackened and last two tarsal joints also blackened; pubescence dense on thorax and shortish, with a slight shorn off appearance, that on thorax in front gleaming very pale sericeous yellowish, that on disc, sides of thorax above wings, on scutellum and predominantly on abdomen above pale golden to even deep golden yellowish, that on abdomen especially gleaming deep golden yellowish, that on first antennal joints and face with slight sericeous yellowish gleams, that on head below and body below frosty whitish, that on sides of venter basally more straw-coloured, that towards apex of venter more yellowish, with the transverse bristly elements across tergites, especially on sides, distinctly darker and more brownish golden to even blackish brown or dark reddish brown; wings greyish

hyaline, with the basal two-thirds very faintly tinged yellowish, the base and costal cell more subopaquely yellowish whitish, the basal comb yellowish, with the veins dark brownish, slightly more reddish or yellowish brown basally, with the discal cross vein at about middle of discoidal cell, with the squamae opaquely yellowish, narrowly dark-bordered and fringed with creamy hairs; halteres yellowish brown, with very pale yellowish knobs. *Head* with the eyes narrowly separated above by a short space about as wide as front ocellus; face subequal in length to combined antennal joints 1 and 2, not prominent; antennae with joint 1 a little more than 3 times as long as 2, with 2 transverse, with 3 not quite $1\frac{1}{2}$ times as long as 1 and 2 combined, very slender and rod-like, only gradually tapering apically, ending apically in a small conical element bearing a short style; proboscis about $3\frac{1}{2}$ mm. long. *Legs* with sparse hairs on femora below and with about 7 spines below on hind ones; claws distinctly more rapidly bent down, almost at right angles, near apex, and the pulvilli reaching their bent-down apices. *Hypopygium* (text-fig. 37) with the beaked apical joints also elongate and pointed.

Type in the South African Museum.

Length of body: about 8 mm.

Length of wing: about $7\frac{1}{2}$ mm.

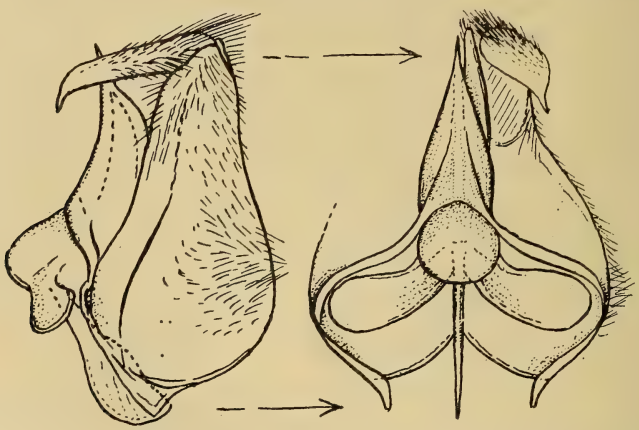
Locality.—Namaqualand: Bowesdorp (Mus. Exp., November 1931).

This species differs from *aurimystax* in having a very much shorter and darker face, more slender third antennal joints, more golden or yellowish pubescence on abdomen, and more rapidly curved claws. It is nearer to *pseudopsis*, from which it differs by the more golden pubescence, shorter face, and claws which are more rapidly bent down nearer apex.

1 ♂ 4 ♀♀ *B. meltoni* n. sp.

Body entirely black; hind part of scutellum (excepting black triangular basal spot) reddish brown; antennal joint 1 obscurely reddish below; legs yellowish, the coxae, trochanters, and extreme bases of the femora black, the last 2 tarsal joints and apices of claws also black; pubescence rather dense and shaggy on front part of thorax, that on occiput, front part and humeral part of thorax markedly gleaming silvery or silky whitish, especially in ♂, thus contrasting collar-like with the more yellowish pubescence on disc of thorax, that on rest of thorax above and on abdomen above pale sericeous yellowish to golden yellowish, especially on base of thorax and on scutellum in ♀♀, that on frons anteriorly in ♀♀ whitish, with

the hairs on face predominantly pale yellowish, the hair on head below, pleural regions, in metapleural tuft, sides of tergite 1, on venter and even sides towards apex of abdomen in both sexes white and contrasting with that on body above, the hair and bristly hairs on coxae also white, with the bristly hairs on ocellar tubercle, on antennae below, the bristles on face in front and upper parts of genae dark even slightly brownish in ♀♀, slightly paler and only those on face brownish basally in ♂, with the bristles or bristly hairs on sides of thorax in



TEXT-FIG. 38.—Side view and half of ventral view of hypopygium of ♂ *Bombylius meltoni* n. sp.

front of wing-bases, including macrochaetae, the post-alar bristles, those across hind margin of scutellum distinctly much darker than rest of pubescence, brownish to blackish brown, especially those on posterior calli and scutellum; all these bristles are usually much darkened towards their bases, with the transverse bristles across hind margins of abdominal tergites from 2 to apex and especially on sides conspicuously black, those towards apex tipped whitish; wings greyish hyaline, the base and costal cell subopaquely yellowish white, with the veins dark blackish brown, becoming slightly paler and more yellowish basally, with the second longitudinal vein slightly undulating and only very gradually bending upwards at its end, with the first posterior cell more or less subacute apically, with the discal cross vein just beyond middle of discoidal cell, with the squamae subopaquely dirty yellowish white, dark margined and fringed with white hairs; halteres with whitish knobs. *Head* with the eyes in ♂ above separated by a space, at narrowest part, as broad as front part of ocellar tubercle, the interocular space in ♀♀ a little less than 4 times as broad as tubercle;

antennae with joint 1 a little more than 3 times as long as joint 2, with joint 3 almost rod-like only a little thicker at base, with their terminal styles slightly bent upwards hook-like and showing a small but distinct basal joint or element from which they arise; proboscis about $2\frac{1}{2}$–$3\frac{1}{3}$ mm. long; palps with the basal joints pallid and longer than apical ones. *Legs* with spines apically above on the femora; front femora without any spines below; middle ones with about 2 spines in apical part in front; hind ones with about 4–7 spines from just before middle to apex, the basal ones more or less slender, bristle-like, and long; claws slender and gradually curved to apex, the pulvilli reaching or extending a little beyond middle. *Hypopygium* of ♂ (text-fig. 38) with the beaked apical joints elongate and narrowish, without any ventral aedeagal process and with the lateral struts broadish.

Types in the South African Museum.

Length of body: about 6–$7\frac{1}{2}$ mm.

Length of wing: about $6\frac{1}{2}$–$8\frac{1}{2}$ mm.

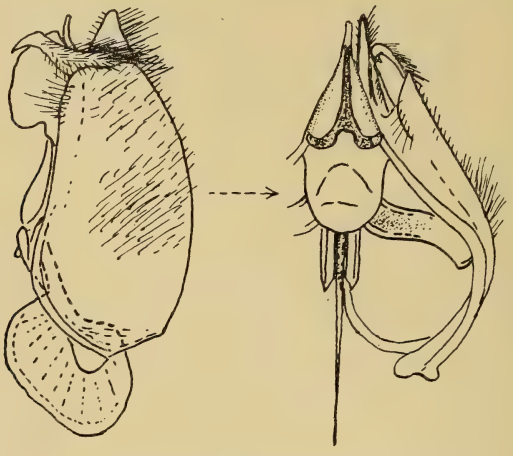
Locality.—Nieuwveld Karoo: Beaufort W. to Victoria West Distr.; Melton Wold Estate (Mus. Staff, October 1935) (Types). Namaqualand: Nieuwoudtville (Mus. Staff, September 1936).

This species is peculiar in the series with black transverse bristles on abdomen in having the second longitudinal vein slightly undulating and only gradually bent upwards at its end.

1 ♂ *B. kaokoënsis* n. sp.

Body, including antennae, face, head below, proboscis, and scutellum black, with the hinder part of scutellum, however, very obscurely darkly rufous and the abdomen entirely black; legs with the femora darkened or blackish to much beyond the middle, even the hind ones predominantly blackish, the apical parts of the femora and the tibiae and tarsi yellowish, the apical parts of the tarsi more brownish; pubescence rather longish and shaggy, predominantly straw-coloured yellowish above and with sericeous gleams, that on abdomen with slightly more sericeous yellowish gleams discally in certain lights, that on occiput appearing almost whitish in certain lights, that on body below distinctly more frosty whitish, with the scaling on legs whitish; wings hyaline, with the costal cell and basal two-thirds faintly, but distinctly, tinged yellowish, with the basal comb yellowish and very poorly developed, with the veins brownish, becoming more yellowish towards base, with the discal cross vein a little beyond

middle of discoidal cell, the first posterior cell normal apically, with the squamae subopaquely yellowish whitish and fringed with whitish hair; halteres with very pale yellowish knobs. *Head* with the eyes slightly flattened above, in actual contact above for a short distance in front of ocellar tubercle, then gradually diverging for a very short distance before more rapidly diverging apically; face subequal in length to combined length of antennal joints 1 and 2; antennae with joint 1 quite $2\frac{1}{2}$ times as long as 2, with 2 subglobular, with 3 more or



TEXT-FIG. 39.—Side view and half of ventral view of hypopygium of ♂ *Bombylius kaokoënsis* n. sp.

less spindle-shaped but broadest nearer base, more rapidly attenuated apically than basally, ending apically in a small conical element bearing a short style; proboscis slender and about 2 mm. long. *Legs* slender and with only about 4 or 5 slender spines on hind ones below; claws distinctly rapidly curved down, almost at right angles, nearer apex, with the pulvilli long and reaching bent-down apices of claws. *Hypopygium* (text-fig. 39) resembles that of *tinctipennis* (cf. text-figs. 30 and 31), with the inner apical angles of basal parts triangularly projecting; beaked apical joints not elongate, but not very broad basally, leaf-shaped and depressed above; aedeagus with the apical part slender, just about reaching apices of inner apical angles of basal parts, with a large, lamellate ventral process on each side and projecting vertically downwards; basal strut more or less chopper-shaped.

Type in the South African Museum.

Length of body: about 6 mm.

Length of wing: about $6\frac{1}{2}$ mm.

Locality.—South West Africa: Kaokoveld; Kaross (Mus. Exp., February 1925).

This species differs from *inermis* in having longer and more shaggy pubescence, black scutellum, more extensively blackened femora, and entirely different type of hypopygium.

1 ♂ *B. extraneus* n. sp.

Black, even antennae, face and proboscis entirely black; scutellum with only the hinder part discally reddish, the red, however, less extensive than is usual in this series; legs with the coxae, trochanters, basal halves of front and middle femora and bases of hind ones blackened or black, and the last two tarsal joints also darkened; pubescence rather shaggy, not with a cropped appearance on thorax above, fairly dense, predominantly straw-coloured yellowish above, appearing more sericeous whitish on thorax in front when viewed from in front, but also appearing more yellowish on disc of thorax in certain lights, that on abdomen above even distinctly more sericeous yellowish in certain lights, especially that towards apex, without any dark transverse rows of bristles on abdomen above, with the pubescence on frons and face pale yellowish, that on face tending to be deeper sericeous yellowish, that on head below, pleurae and pectus, and base of venter white, the longish hairs on femora also whitish, with the scaling on legs very pale yellowish white, appearing almost white on dark parts, the spines and spicules pale yellowish; wings greyish hyaline, becoming slightly subopaquely yellowish whitish in costal cell and base, with the veins blackish brown, becoming paler towards base, with the discal cross vein distinctly just before middle of discoidal cell, with the first posterior cell tending to be narrow, with the basal comb small and yellowish, with the squamae opaquely yellowish and fringed with almost whitish hairs; halteres yellowish, with almost white knobs. *Head* with the eyes above almost touching, separated by a very narrow space, even narrower than front ocellus, the inner margins at first gradually diverging for a short distance, then rapidly; antennae with joint 1 quite 3 times as long as 2, with 3 subrod-like, gradually thickened basally, the terminal style short and straight; proboscis about 2½ mm. long. *Legs* without any spines on front femora below; middle ones without any or apparently with only 1 spine apically on anterior aspect, hind femora with about 4–5 slender spines from about middle to apex; claws slender, gradually curved downwards apically, the pulvilli not reaching the apices.

Hypopygium resembles that of *meltoni* (cf. text-fig. 38), with the beaked apical joints also elongate and similarly shaped, with the aedeagus, lateral struts, and even basal strut similarly shaped, only the inner apical parts of basal parts bounding the beaked apical joints on the inside distinctly longer and more projecting, and also with slightly denser hairs on the basal parts.

Type in the South African Museum.

Length of body : about 5½ mm.

Length of wing : about 5½ mm.

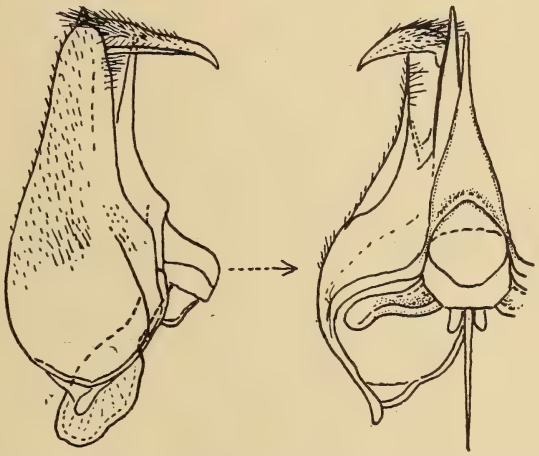
Locality.—Escarpment between Nieuwveld and Gouph Karoo: Fraserburg Distr., Teekloof (Mus. Staff, November 1935).

This species is peculiar in that the discal cross vein is a little, but distinctly, before the middle of discoidal cell in this specimen. In this respect it should really be included in the *globulus* and *eurhinatus* series. It may, however, be easily separated from the former series by the predominantly black body, entirely black antennae, black proboscis, black abdomen, black face, etc.

1 ♂ *B. anomalus* n. sp.

Body, including face and head below, black; scutellum ferruginous reddish on hinder half, and first antennal joints yellowish, though darkened above, the narrowish hind margins of sternites also reddish and proboscis below reddish brownish; legs with the femora blackened at bases, and apical parts of tarsi brownish; pubescence dense and shortish on thorax above and with a shorn-off appearance, longer on abdomen, predominantly whitish sericeous on occiput and thorax in front, becoming more gleaming yellowish sericeous on abdomen above, even more golden on abdomen, but paler again towards apex, with the transverse bristly elements on abdomen slightly deeper golden and even tending to be darker on sides towards apex, the pubescence on face and antennae more pale golden to golden, that on body below, in metapleural tuft and on sides of venter basally more whitish to frosty whitish, the hair on sides of tergite 1 also more whitish, the scaling on legs whitish; wings vitreous hyaline, with the basal two-thirds faintly tinged yellowish, the costal cell and base more subopaquely yellowish whitish, with the basal comb small and yellowish, the veins reddish brown, paler basally, the first longitudinal vein reddish yellow, with the discal cross vein only a little beyond middle of discoidal cell, with the second longitudinal vein only gradually curved up at its end, with the squamae subopaquely yellowish, dark-margined and fringed with

creamy yellowish hairs; halteres yellowish brown and with very pale knobs. *Head* with the eyes contiguous above for a short distance scarcely as long as ocellar tubercle; face slightly longer than combined length of antennal joints 1 and 2; antennae with joint 1 about 3 times as long as 2, with 2 globular, with 3 about 1½ times as long as 1 and 2 combined, gradually narrowed apically, ending in a conical terminal element bearing a style; proboscis about 3½ mm. long. *Legs* with about 2 spines in front on middle femora below and with about 6 spines



Text-fig. 40.—Side view and half of ventral view of hypopygium of ♂ *Bombylius anomalus* n. sp.

on hind ones below; claws gradually and arcuately curved, the pulvilli not reaching their apices. *Hypopygium* (text-fig. 40) with the inner apical angles or processes of basal parts only slightly projecting: beaked apical joints elongate, narrowish, their apices acute and bent downwards, pubescent above; aedeagus without a ventral process below, the apical part straight; lateral struts comparatively broad and short; basal strut bat-shaped.

Type in the South African Museum.

Length of body : about 6½ mm.

Length of wing : about 7½ mm.

Locality.—Namaqualand: Garies Distr.; Klip Vlei (Mus. Exp., November 1931).

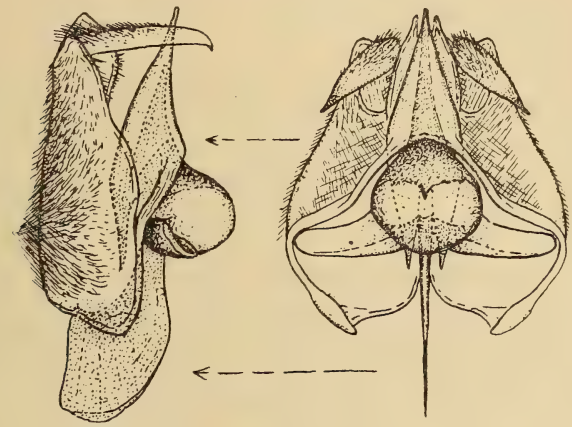
This species resembles *aurimystax*, but is slightly smaller, with the wings more hyaline in apical part, with the discal cross vein distinctly beyond middle of discoidal cell, the eyes are more subcontiguous

above, the face is very much shorter and not so conically produced, and the femora are more distinctly darkened basally.

1 ♂ *B. calviniensis* n. sp.

Body black; antennal joints 1 and 2, face, genae, front part of head below, base of proboscis below, greater part of scutellum, propleural part above front coxae, and to a certain extent sutural parts of pleurae above middle coxae ferruginous red; legs reddish yellow, only the last 2 tarsal joints darker and more brownish, with the claws black from before middle; pubescence fine and dense, not with a very close shorn-off appearance on the thorax, rather long on abdomen, that on face not very dense and not very long, that on front coxae dense and shaggy, that on occiput and body above yellowish, gleaming sericeous yellowish, but becoming distinctly paler and more whitish towards apex of abdomen, that on ocellar tubercle, antennae, face, and genae deeper yellowish and gleaming more golden, that on head below more contrastingly whitish, that on pleurae duller than above but straw-coloured yellowish, the hair below wing-bases and in metapleural tuft being distinctly more whitish, the yellowish hairs on coxae, especially front ones, and on the trochanters with intermixed dark or brownish ones, with the pubescence on venter dense and paler than on thorax in front, more straw-coloured, that on sides appearing very pale and becoming distinctly more whitish apically, with the fine but dense hairs on front and middle femora below predominantly straw-coloured yellowish but with intermixed darkish or more brownish ones, especially near base, with the macrochaetal bristles (2) on each side in front of wings pale yellowish and without any distinct stout transverse bristles on abdomen; wings vitreous hyaline, with the costal cell, first basal cell, base and alula subopaquely pale yellowish, with the basal comb yellow and appearing golden in certain lights, with the veins dark brownish, becoming more yellowish basally, the costal vein and first longitudinal vein being more reddish yellow, with the discal cross vein a little beyond middle of discoidal cell, with the squamae subopaquely yellowish and fringed with almost whitish hairs which gleam creamy yellowish in certain lights; halteres yellowish, with very pale yellowish knobs. *Head* with the eyes above narrowly separated by a short space about as wide as front ocellus just in front of ocellus; face slightly conically prominent from side; antennae with joint 1 short, only a very little longer than 2 times as long as 2, with 3 at least $1\frac{1}{2}$ times as long as 1 and 2 combined, gradually narrowed apically,

ending apically in a short joint-like basal element bearing a fine style, with the bases of first antennal joints situated on a slightly raised front part of frons; proboscis about 4 mm. long. *Legs* slender, without any spines on front femora; middle ones with about 3 slender bristle-like spines in apical half in front and 2 behind; hind femora with about 9 slender spines from just before middle to apex on outer side below; claws gradually curved down apically, with the pulvilli just about reaching middle of claws. *Hypopygium* (text-fig. 41)



Text-fig. 41.—Side and ventral views of hypopygium of ♂ of *Bombylius calviniensis* n. sp.

with the beaked apical joints narrow and elongate as in the other species in this series.

Type in the South African Museum.

Length of body: about 7 mm.

Length of wing: about 8 mm.

Locality.—N. Western Karoo: Calvinia (Mus. Exp., September 1936).

This species very closely resembles such species as *aurimystax*, *pseudopsis*, and *anomalus*. From the latter it may at once be distinguished by having the face and lower part of head reddish, shorter first antennal joints, less whitish pubescence on pleurae and pectus, paler pubescence on abdomen, and the wings less distinctly tinged yellowish in basal half. From *pseudopsis* it differs in having no trace of transverse blackish or dark bristly hairs or bristles on abdomen, more yellowish pubescence on pectus and pleurae, and the wings not distinctly tinged yellowish in basal half. From *aurimystax* it differs

in not having the basal two-thirds of wings tinged yellowish, discal cross vein not at about middle of discoidal cell, more yellowish pubescence on pectus, slightly broader interocular space which is also much shorter and a less conical face.

B. xanthocerus Bezz.

(P. 19, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species, the ♂ of which Bezzi described very shortly, is also represented in the still undescribed ♀-sex. The species is characterised as follows:—

Body predominantly black; the entire antennae, the face and head below, sometimes extreme base of proboscis below, the entire scutellum slight sutural infusions on pleurae, especially in ♀♀, the narrowish hind margins of tergites 4–6 in some ♀♀ especially and hind margins of sternites yellowish; legs almost entirely yellowish, even the coxae are yellowish, only the trochanters have a black spot, and last 2 tarsal joints and apices of claws are blackish; pubescence dense and shortish, that on thorax, especially in ♂♂, with a shorn-off appearance, that on abdomen also not shaggy in both sexes, predominantly gleaming sericeous yellowish to pale golden yellowish above, that towards apex of abdomen in ♂♂ not much paler, that on first antennal joints and face in ♂♂ even more sericeous whitish, more sericeous yellowish in ♀♀, that on sides of abdomen basally, especially in ♀♀, deeper golden yellowish, that on head below, pleurae, pectus, and on each side of venter basally paler yellowish than above, the palest pectoral pubescence gradually grading into the yellowish hair on body above, with the bristly elements on body yellowish like rest of pubescence; wings glassy hyaline, iridescent, with the base, costal cell, and basal part of first basal cell subopaquely whitish yellowish, with the basal comb small and yellowish, the veins brownish, becoming paler and yellowish basally, with the discal cross vein a little beyond middle of discoidal cell, with the second longitudinal vein gradually curved up at its end, with the squamae subopaquely pale yellowish and fringed with pale yellowish hair, which appear more creamy in certain lights; halteres yellowish and with almost whitish knobs. *Head* with the eyes above in ♂♂ in contact for a short distance, subequal in length to ocellar tubercle, with the interocular space on vertex in ♀♀ rather narrowish, only about $1\frac{1}{2}$ times as broad as combined length of antennal joints 1 and 2, the inner margins gradually diverging apically; face rather short and shorter than combined length of antennal joints 1 and 2;

antennae with joint 1 shortish, only about 2½ times as long, with 2 slightly longer than broad, with 3 quite, or even a little more than, 1½ times as long as 1 and 2 combined, more or less spindle-shaped, broadest just before middle and more slender apically, the joint appearing slightly humped above at broadest part, ending apically in a distinct conical element bearing an upwardly directed short style; proboscis about 3–4 mm.; palps slender, with the apical joint rather long and slender. *Legs* with longish hairs on femora below, with about 2 slender spines on middle femora in front and about 4–6 slender spines on hind ones below; claws rapidly bent down, almost at right angles, nearer apex, and the pulvilli reaching their bent-down apices; front tarsal joints in ♀♀ hairy and only very slightly thickened. *Hypopygium* of ♂ (text-fig. 42) with the inner apical angles of basal parts somewhat angularly acute; beaked apical joints not slender and very elongate, slightly depressed above; aedeagus without a process ventrally below.



Text-fig. 42.—Side view of hypopygium and dorsal view of beaked apical joint of ♂ *Bombylius xanthocerus* Bezz.

In the South African Museum.

Length of body: about 6½–7 mm.

Length of wing: about 6–7 mm.

Locality.—Namaqualand: Bushmanland.

Easily distinguished by the entirely reddish or yellowish antennae, the slightly humped third antennal joints, the short face, and pale yellowish pubescence on body. Except in the colour of the pubescence this species has no connection with *mundus* Lw.

1 ♂ 5 ♀♀ *B. karooënsis* n. sp.

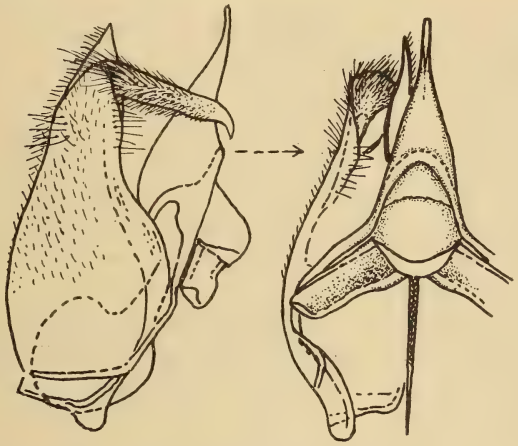
(Syn. = *ruficeps* Bezz. nec Macq. ♂.)

The ♂ of this species was referred to *ruficeps* Macq. (pp. 88 and 89, Dipt. Exot. ii, Table VII, fig. 5, 1840) by Bezzi (p. 21, Ann. S. Afr. Mus., vol. xviii). Macquart's poor description of a ♀ gives no clue to the identity of this species, except its large size, and his figure of a wing does not refer to his *ruficeps*, but to Fabricius' *micans*, a species

referred to group 3 in this paper. This species of Macquart, as well as other large S. African species of his, such as *albiventris*, *flaviceps*, *aurantiacus*, and *rufus* (pp. 87, 88, 89, and 91, loc. cit.), are all indeterminable from his brief and vague descriptions and confused figures. Unless Bezzi has had access to Macquart's type, I fail to see how he was able to refer this ♂-specimen to *ruficeps*. In view of the fact that all these specimens are from the Karoo and the N.W. Cape Province, localities where the Bombyliid-fauna is poorly known, even at present, it is improbable that Macquart's species can be referred to a typical Karoo-species, such as this. The characters of this species are:—

Black; antennal joint 1 (also 2 in ♀), face and front part of head below, basal joints of palps, proboscis below, and scutellum pale yellowish, pale reddish yellow to reddish, the scutellum being more ferruginous red; pleurae, especially in ♀, often slightly reddish above the coxae, and first abdominal segment on side reddish to obscure reddish, with the apical segment in ♀ often also reddishy and hind margins of ventral segments 1–3 more or less broadly pale yellowish white, but the apical sternite in ♀ more reddish; coxae and legs pale ochreous yellow to reddish yellow, the coxae in ♂ being slightly more obscure reddish, and the bases of the femora in the ♂ slightly darkened, with the last tarsal joints also distinctly blackened in both sexes; pubescence on body above, from side, creamy yellowish, pale yellowish to pale golden yellow in ♀, paler and more creamy yellowish in ♂, that on occiput and thorax in front in ♂ almost gleaming sericeous whitish, that on abdomen in ♀ creamy yellow, distinctly yellow to golden yellow, much paler and almost white apically in ♂, but more yellowish basally on each side, with the bristles in front of wing-bases, those on mesopleuron in ♀, the scutellar bristles and the transverse bristles on abdomen in ♀ pale yellowish to pale golden yellow, paler in ♂, with the pubescence on frons, antennae, and face pale sericeous yellowish to pale golden in ♀, almost sericeous white in ♂, that on head below in both sexes sericeous white, that on pleurae creamy yellowish, slightly paler in ♂, that on upper parts of pleurae in both sexes slightly more yellowish, the entire pleural parts in ♂, however, appearing paler and more sericeous in certain lights, that on venter creamy yellowish in ♂ and some ♀♀, and slightly more yellowish to even ochreous yellowish in ♀, with the short and depressed pubescence on body above pale sericeous yellow in ♀ and more sericeous whitish in ♂, more or less arranged densely and transversely across bases of segments and along dorsal line in ♀ especially; wings hyaline, but with a distinct feeble

subopaquely milky whitish tint, with the base, costal cell, basal half of first basal cell, and extreme base of second basal cell more subopaquely yellowish, with the basal comb large and well developed, sericeous yellowish to yellow, with the veins pale reddish yellow, especially along main veins and towards base, often more brownish towards their apices, with the opaquely yellowish squamae fringed with pale creamy whitish hair, with the discal cross vein much beyond middle of discoidal cell and with the second longitudinal vein slightly



TEXT-FIG. 43.—Side view and half of ventral view of hypopygium of ♂ *Bombylius karooënsis* n. sp.

undulating; halteres yellowish and with almost white knobs. *Head* with the eyes in ♂ above just touching in front of tubercle, then gradually diverging for a short distance before a more rapid divergence in front, with the interocular space in ♀ about 3, or a little more, times as broad as tubercle; eyes in ♂ more or less slightly flattened above; antennae with joint 1 very short, about 2½–3 times as long as joint 2, with joint 3 broadest near base, more so in ♀, then rapidly attenuated apically, the apical slender part being markedly slender and also slightly longer in ♂, with the terminal joints not distinctly separately visible, but conically broadened at base and ending in a short style; proboscis about 5–5½ mm. long, comparatively stout. *Legs* with fairly longish pubescent hairs on femora below basally; front femora with about 2–3 spines below and often with 1 spine on outer hind part; middle ones with about 5–6 spines in apical half below and 2–4 on outer apical aspect; hind ones with about 10–15 fairly stout spines below from near base to apex, with the 2 towards base often placed

transversely as a pair; front tarsal joints in ♀ compact and hairy, but not markedly thickened; claws only gradually and slightly curved downwards apically, with the pulvilli shortish and not extending much beyond middle of claws. *Hypopygium* of ♂ (text-fig. 43), with the inner apical angles of basal parts prominent, projecting and provided dorsally with short hairs; beaked apical joints comparatively long and slender; aedeagus with the slender apical part projecting slightly beyond the apical angles of basal parts, without a ventral process.

Types in the South African Museum; paratypes in the Transvaal Museum, Imperial Institute, and British Museum.

Length of body: about 10–11 mm.

Length of wing: about 10–11 mm.

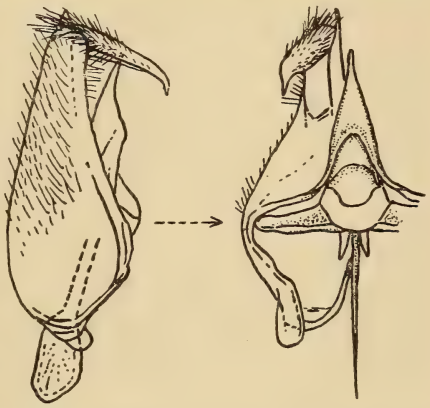
Locality.—N.W. Cape Province: Bushmanland; Jakhals Water (Lightfoot, October, 1911) (Types). Karoo: Graaff-Reinet (Mackie, 24–27/10/31) (Imp. Institute). S. Eastern Karoo: Willowmore (Brauns, October 1921). S. Karoo: Worcester (Turner, September 1928 (British Museum).

Easily recognised by its large and bulky size, its dense yellowish pubescence, attenuated third antennal joints, only slightly curved claws, and short pulvilli. It is one of the largest species of *Bombylius* in this group.

1 ♂ 1 ♀ *B. aemulus* n. sp.

Body predominantly black, with antennal joint 1 and to a certain extent 2, the face and head below in ♀, the face in front and head below in ♂, the base of proboscis below obscurely, the greater hinder part of scutellum, the hind margins of sternites in both sexes, and an obscure infusion on pleurae in ♀ reddish yellow or yellowish; legs almost entirely yellowish in both sexes, only the last 2 tarsal joints blackish; pubescence somewhat dense and shaggy, that on thorax above not with a shorn off appearance, that on abdomen also longish, that on face dense and longish, with the bristly elements poorly developed, no distinct stoutish macrochaetal bristles being evident and rest of bristles not very stiff or stoutish, more like rest of pubescence, predominantly gleaming sericeous whitish above in ♂ and scarcely less whitish, feebly sericeous yellowish in ♀, that on abdomen and towards apex, in ♂ especially, almost white, that on scutellum and disc of thorax in ♀ with a very faint sericeous yellowish tint, that on face also with a very feeble sericeous yellowish tint in certain lights, that on body below frosty whitish in both sexes; wings glassy hyaline,

iridescent, with the basal two-thirds in ♂ very delicately and feebly tinged yellowish, the base and costal cell in both sexes subopaquely yellowish whitish, with the basal comb very feebly developed and yellowish whitish, the veins brownish in apical half but pale yellowish in basal half including costal veins, with the discal cross vein just beyond, or a little beyond, middle of discoidal cell, with the squamae subopaquely pale ochreous yellowish like base of wing and fringed with white hairs; halteres yellowish, with very pale yellowish or almost whitish knobs. *Head* with the eyes above in ♂ separated by a space about as broad as front part of tubercle, the interocular space in ♀ about 3 times as broad as ocellar tubercle; face shortish, a little shorter than combined length of antennal joints 1 and 2; antennae with joint 1 slender, quite 3, or even a little more, times as long as 2, with 2 globular, with 3 a little less than $1\frac{1}{2}$ times as long as 1 and 2 combined, slender, almost rod-like, tapering apically and ending in a very small conical terminal element bearing a minute style; proboscis about 2 mm. long. *Legs* with fairly longish hairs on femora below, especially in ♂, with about 3–7 spines on hind femora below; front tarsi in ♀ slightly thickened; claws rapidly bent down, almost at right angles, nearer apex, and pulvilli reaching their bent-down apices. *Hypopygium* of ♂ (text-fig. 44) with the inner apical angles or processes of basal parts projecting slightly; beaked apical joints elongate, narrowish, acutely pointed; aedeagus without a ventral process below; basal strut not very broad and more or less racket-shaped.



Text-fig. 44.—Side view and half of ventral view of hypopygium of ♂ *Bombylius aemulus* n. sp.

Types in the South African Museum.

Length of body: about 5 mm.

Length of wing: about 6 mm.

Locality. — Western Cape Province: Olifant's River Valley (between Citrusdal and Clanwilliam) (Mus. Exp., November 1931).

This species resembles *globulus* in the rather convex thorax which,

together with the pubescence, appears subglobular. It differs, however, in not having a reddish proboscis, its less yellowish wings, and entirely different type of hypopygium.

3 ♀♀ *B. montivagus* n. sp.

Black; antennal joint 1, face in front, genae and head below and scutellum yellowish to pale reddish yellow, the scutellum being more ferruginous red and blackened at base; antennal joint 2 obscurely reddish brown to blackish; pleurae often with a reddish infusion above coxae and the posterior calli obscure reddish; venter with the narrow hind margins of segments pallid and often with the last tergite yellowish and pale reddish yellow apically; legs, including the coxae and trochanters, pale yellowish to pale yellowish reddish, the last 2 tarsal joints and apices of claws blackish brown to black; pubescence on body above long and recumbent, that on occiput and thorax in front being long, straw-coloured yellowish above, that on antennae and face being more pale sericeous yellow, with the tuft in front of wings more creamy yellowish in certain lights, that on abdomen laterally towards base also more creamy yellowish, that towards apex laterally and above more straw-coloured, that on head below, on pleural and pectoral parts and base of venter sericeous whitish, becoming duller whitish and more straw-coloured whitish towards upper parts of pleurae, the metapleural tuft being more straw-coloured whitish, that on greater part of venter straw-coloured yellowish, inclining to creamy yellowish laterally, with the bristles in front of wings straw-coloured yellowish to whitish, with apparently no stiffer bristles on upper part of mesopleuron; wings hyaline, but with a very faint milky whitish tint in certain lights, with the costal cell, basal half of first basal cell, and base more subopaquely whitish to very pale yellowish white, with the basal comb small and whitish, with the veins dark brown, becoming paler and even more yellowish towards base and along main longitudinal veins, with the second longitudinal vein more or less straight, with the discal cross vein beyond middle of discoidal cell, with the opaquely whitish to faintly yellowish squamae fringed whitish; halteres yellowish, with almost white knobs. *Head* with the interocular space, at narrowest part, about 3, or even more, times as broad as ocellar tubercle; antennal joint 1 slender, comparatively long, at least $3\frac{1}{2}$ times as long as the subglobular second joint, with joint 3 slender, not much thicker than joint 1, at least $1\frac{1}{2}$ times as long as 1 and 2 combined, almost rod-like,

broadest just before middle, but not much broader than rest of the joint, very gradually more narrowed apically, with the conically thickened basal part of terminal joints about as long as the style (the different joints not being separately visible); palps with the basal joints pallid; proboscis about 2–2⅓ mm. long. *Legs* with longish and slender hairs on femora basally below, without any spines on front and middle ones below, and with about 3–5 slender spines in apical half below on hind femora; claws with the apices rather rapidly bent downwards and the pulvilli as long as claws.

Type in the British Museum.

Length of body: about 5½–6 mm.

Length of wing: about 6 mm.

Locality.—S. Western Cape Province: Ceres (Turner, 1500 feet alt., January 1921) (Type); Ceres (Turner, November 1920); Worcester (Turner, December 1933).

A smallish species which resembles the ♀ of *aemulus* to such an extent that it is almost inseparable, but as the ♂ is still unknown these specimens are provisionally referred to a separate species. From the allotype-*aemulus* these ♀♀ differ in having slightly more yellowish pubescence, in having distinctly more yellowish hair in front of wings, less convex thorax, more reddish on pleurae, and darker wing-venation. From ♀♀ of *imitator* they differ in having an entirely black abdomen, longer first antennal joints, more slender third antennal joints, and no dark or blackish transverse bristles on abdomen.

2 ♀♀ *B. damarensis* n. sp.

Body black; antennal joint 1, front part of face, genae, head below, the very narrow hind margins of last few tergites, the extreme sides of tergites (seen from below), and the narrow hind margins of sternites pallid or yellowish; scutellum pale yellowish red, the base black; legs very pale yellowish, the coxae obscurely reddish brown and last 2 or 3 tarsal joints blackish brown; pubescence comparatively short, pale sericeous yellowish to very pale golden yellowish above, that on frons more pale golden to ochreous yellowish, that on abdomen above more distinctly golden yellowish, that on head below whitish, that on pleurae only a little paler yellowish than on body above, becoming slightly paler towards pectus and appearing more whitish when viewed from obliquely in front, with the thoracic, scutellar, and abdominal bristles coloured like rest of pubescence; wings hyaline, but with a faint whitish subopacity, the base being more subopaquely

whitish to pale yellowish white and the costal cell more whitish, the veins brownish, more yellowish basally, the basal comb yellowish and small, with the discal cross vein tending to be at about the middle or slightly beyond the middle of discoidal cell, with the squamae opaquely pale yellowish white and fringed with very pale yellowish or creamy yellowish hair; halteres yellowish, with almost white knobs. *Head* with the interocular space on vertex, at narrowest part, about 3, or very little more, times as broad as ocellar tubercle; antennae with joint 1 short, only about 2½ times as long as the transverse joint 2, with joint 3 comparatively stoutish, broadest a little before middle and then more gradually narrowed apically than basally, the apical part not being very slender, quite 2 times as long as joints 1 and 2 combined, with the terminal elements in form of a conical element bearing a short style; face somewhat sparsely haired, short, and subequal in length to combined antennal joints 1 and 2; proboscis comparatively stout, about 2 mm. long, and entirely black. *Legs* with some sparse hairs on femora below basally, without any spines on front femora below; middle ones with about 1 spine below; hind femora with about 3–4 slender, pallid spines in apical half below; claws rapidly bent down, almost at right angles, nearer apex, and the pulvilli reaching their bent-down apices; front tarsal joints slightly thickened, more compact, and hairy.

Type in the British Museum.

Length of body: about 6½–7 mm.

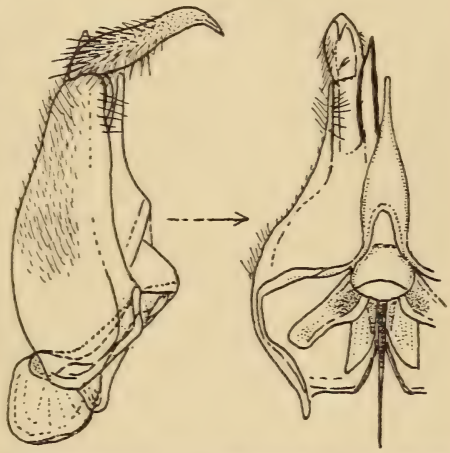
Length of wing: about 7 mm.

Locality.—South West Africa: Damaraland; Okahandja (Turner, 1–12/1/28, and the Type, 13–19/1/28).

2 ♂♂ *B. simulans* n. sp.

Body black, with the thorax somewhat convex, with the face and head below also predominantly black, with the first and to a certain extent second antennal joints yellowish, the first sometimes slightly darkened above, with the proboscis yellowish below and even above basally, with the greater part of scutellum ferruginous reddish and hind margins of sternites yellowish, the abdomen above entirely black; legs predominantly yellowish, only the last two tarsal joints and apices of claws blackish; pubescence dense and longish, that on abdomen more shaggy, that on first antennal joints and face dense, that on body above predominantly pale creamy yellowish and with sericeous gleams, that on each side on thorax in front sometimes even

gleaming more sericeous whitish in certain lights, that on abdomen becoming paler and more whitish towards apex, but on sides basally more sericeous yellowish, that tuft-like on each side in front of wings also appearing more sericeous yellowish in certain lights, that on face with yellowish or faint sericeous yellowish gleams, that on body below contrastingly frosty whitish, without any dark bristly elements on abdomen; wings greyish hyaline, with the basal two-thirds very faintly but distinctly tinged yellowish, the costal and basal part more subopaquely yellowish, with the basal comb yellowish, the veins dark brownish, becoming paler and more yellowish towards base and along costal and subcostal veins, with the discal cross vein a little beyond middle of discoidal cell, with the squamae subopaquely pale yellowish, narrowly dark-bordered and fringed with creamy hairs; halteres yellowish and with almost white knobs. *Head* with the eyes narrowly separated above by a space as broad as front half or part of ocellar tubercle; face about as long as or slightly shorter than combined length of antennal joints 1 and 2; antennae with joint 1 nearly or about 3 times as long as 2, with 2 transverse, with 3 a little less than 1½ times as long as 1 and 2 combined, slightly thickened just before middle and more rapidly narrowed apically than basally, ending apically in a rather distinct conical terminal element bearing a short style; proboscis about 3 mm. long, slender. *Legs* with rather dense hairs on femora below, with about 1–2 spines in apical half on middle femora below; hind ones with about 5–8 slender spines below; claws rapidly bent down, almost at right angles, nearer apex, and with the pulvilli reaching their bent-down apices. *Hypopygium* (text-fig. 45) with the inner apical angles of basal parts slightly projecting; beaked apical joints elongate, narrowish, and acutely pointed apically, their apices bent downwards. The hypopygium much resembles those of other species in which the beaked apical joints are elongated.



Text-fig. 45.—Side view and half of ventral view of hypopygium of ♂ *Bombylius simulans* n. sp.

Type in the South African Museum.

Length of body: about 6–7 mm.

Length of wing: about $7\frac{1}{2}$–8 mm.

Locality.—Namaqualand: Kamieskroon (Mus. Exp., September 1930).

Superficially this species resembles *aemulus* in the subglobular thorax, from which it differs in having more yellowish pubescence above, more distinctly tinged wings, larger basal comb, and less slender third antennal joints.

1 ♂ 4 ♀♀ *B. auriferus* n. sp.

Body, including proboscis, antennal joint 3, narrow base of scutellum and the coxae in part, black; antennal joints 1 and 2, greater part of face, scutellum, hind margins of abdominal segments above, fairly broad in some ♀♀, broader in ♂, slightly broader on sides in some ♀♀, and distinctly broader on sides of tergite 2 in ♂, and broad hind margins of sternites and genital segment, pale reddish; legs, excepting only brownish coxae and last 2 tarsal joints, pale yellowish; pubescence with characteristic and peculiar, crinkly or woolly, somewhat matted, white hair on occiput, thorax anteriorly and on sides, on abdomen, and on pleurae, much denser in ♂, especially on front and sides of thorax and on abdomen, the pubescence on disc of thorax, especially in ♂, with a cropped appearance, with the hairs on frons, antennal joint 1 below, on face and genae silvery whitish, the short bristly hairs and bristles on occiput and on disc of thorax in ♂ also gleaming silky whitish, the hairs on coxae also gleaming silky whitish, with the shortish bristles on occiput, ocellar tubercle and sides of frons, on thorax above and sides of thorax, the macrochaetal bristles, the post-alar bristles, the longer bristles on hind part of scutellum and fairly densely and transversely across hind margins of tergites in ♀♀ gleaming golden to reddish golden, those on abdomen especially reddish golden, with the macrochaetae, post-alar, and scutellar bristles and dense transverse bristles on abdomen in the ♂ paler golden yellow, their apices more silvery in certain lights and even the short ones on disc of thorax in ♂ with slightly golden bases, with the pubescence on venter in both sexes silvery or silky whitish, the hair-like scaling on legs white, and the spines on femora and spicules on tibiae yellowish with slight golden gleams; wings hyaline, the base, costal cell, and base of first basal cell very pale subopaquely yellowish, the veins pale yellowish, becoming slightly darker apically and with a distinct

blackish infuscation on discal cross vein and on apical cross vein of second basal cell and indications at base of vein between discoidal and third posterior cells and at apex of first posterior cell, with the discal cross vein just beyond middle of discoidal cell, with the squamae opaquely pale yellowish, almost whitish and fringed with white hair; halteres yellowish, with almost white knobs. *Head* with the eyes in ♂ separated above, at narrowest part about as broad as ocellar tubercle, the inner margins rapidly diverging apically, with the interocular space in ♀ nearly 3 times as broad as tubercle; antennae with joint 1 about 3 times as long as 2, with joint 3 about 1½ times as long as 1 and 2 combined, broadest near base and then gradually narrowed apically, the terminal style short and straight; proboscis about 3–5 mm. long (slightly longer and more slender in ♂); palps distinctly 2-jointed, the apical joint shorter and slightly clavate apically, the basal joint stouter. *Legs* with about 2–3 spines on lower front face in apical half of middle femora; hind femora with about 5–6 spines below from near base to apex; pulvilli shorter than claws, the latter gradually and arcuately curved. The hypopygium of this single ♂-specimen is unfortunately damaged.

Types in the South African Museum.

Length of body: about 7–8½ mm.

Length of wing: about 6–7 mm.

Locality.—Bushmanland; Jakhals Water (Lightfoot. October 1911) (Types); Henkries (Lightfoot, October 1911). Namaqualand: Kamieskroon (Mus. Exp., November 1936). Little Karoo: Willowmore (Brauns, 25/11/21). (In the Transvaal Museum.)

This beautiful species is very characteristic and may be easily recognised by its crinkly, woolly, white hair and slight infuscations on cross veins. From *paterculus* Walk. it may be distinguished by all these characters and also by the front tarsi which in the ♀♀ are not visibly thickened.

1 ♀ *B. auriferus* var. *nigripes* n.

A ♀-specimen from Van Rhynsdorp (Brauns, ix/1928) in the Transvaal Museum, which is unfortunately a bit damaged, differs from the type ♀ in having the interocular space comparatively slightly broader, joints 1 and 2 of the antennae also black, joint 1 relatively longer, the femora are black, the red on hind margins of abdominal segments less distinct, the black infuscations on cross veins very distinct and striking and also with an infuscation at base of second longitudinal

more distinct, the base of vein between axillary and anal cells also distinctly infuscated, the discal cross vein is distinctly much beyond middle of discoidal cell, the cell is also longer than first posterior cell, the legs with about 9 spines on hind femora below, bristles on abdomen above are slightly paler, more yellowish, less golden, and hair on body below more yellowish. Owing to the lack of more material and as this specimen does not differ structurally from the ♀ allotype and paratypes, I prefer to regard it at present as only a new variety. A ♀-specimen from Murraysburg in the South African Museum is much like var. *nigripes,* but has predominantly yellow legs but black antennae and black face.

1 ♀ *B. auriferus* var. *melanus* n.

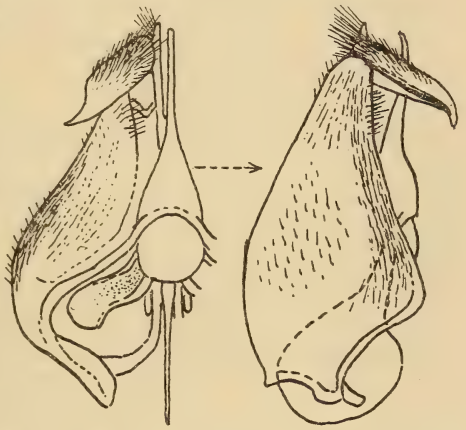
Similarly there is in the British Museum a very denuded ♀-specimen, from Prince Albert Road (Turner, November 1931), which, in the absence of a ♂, can be regarded at present as still another variety of *auriferus.* This specimen differs from the ♀-types of *auriferus* s. str. and its var. *nigripes* in having the femora, and especially the hind ones, more extensively blackened, the tibiae also darkened above and the hind ones almost entirely so, the hind tarsi too are entirely darkened, with the spines on the legs whitish, not yellowish; face and head below dark; scutellum much more blackened, only the hind part being reddish; reddish hind margins of abdomen narrower and much less conspicuous; antennal joints 1 and 2 also darkened as in var. *nigripes,* but joint 1 is distinctly shorter, only about 3 times as long as joint 2; wings more like that of *auriferus* s. str., with the blackish or dark spots much less distinct than in var. *nigripes,* with the veins, however, slightly darker than in type form; pubescence (as far as this is not denuded) apparently more uniformly white above, that on tubercle, frons, and face, including bristly hairs, entirely white, very shining and gleaming silvery whitish in certain lights, that on body above apparently also whiter and not golden or deep golden and with the hair on coxae also silvery whitish as in the type form.

Type in the British Museum.

1 ♂ *B. latipectus* n. sp.

Body black, with antennal joints 1 and 2 yellowish, the face above and front part of head below yellowish, the base of proboscis below also yellowish reddish, with the greater part of scutellum, the hind margins of tergites on sides and the hind margins of sternites more broadly

reddish; legs almost entirely yellowish, only the coxae to a certain extent, the last 2 tarsal joints, and apical parts of claws black; pubescence dense, rather longish on thorax, slightly longer and more shaggy on abdomen, predominantly gleaming pale sericeous yellowish above, scarcely paler sericeous yellowish towards apex of abdomen, that on sides of abdomen and in front of wings appearing more pale golden only in certain lights, that on head below, pectus, pleurae, and to a certain extent base of venter on each side contrastingly frosty whitish, with the macrochaetal bristles, post-alar bristles, scutellar bristles, and those across tergites coloured like rest of pubescence above, with the hairs on femora and scaling on legs whitish; wings greyish hyaline, with the basal two-thirds distinctly tinged yellowish, the base, costal cell, basal half of marginal cell, and part of the first basal cell more subopaquely yellowish whitish, with the basal comb rather strongly developed and yellowish, the veins dark brownish apically, becoming yellowish to pale yellowish reddish towards base, the first longitudinal vein yellowish, with the discal cross vein at about middle of discoidal cell and discoidal cell rather truncate apically, with the squamae subopaquely yellowish and fringed with whitish hair; halteres pale yellowish brown, with very pale yellowish knobs. *Head* with the eyes separated above by a space about as broad as narrow front part of ocellar tubercle or broad front ocellus, with the eyes rather large and upper facets rather coarse; face longer than combined length of antennal joints 1 and 2; antennae with joint 1 short, only a little more than 2, or about $2\frac{1}{2}$ times as long transverse joint 2 (with 3 missing in specimen); proboscis rather long, about $5\frac{1}{2}$ mm. long; palps with the shorter apical joint clavate. *Thorax* comparatively large and well developed, much longer than broad, nearly as long as combined scutellum and abdomen. *Legs* with longish hairs on femora below; middle femora with about 4–7 spines in front below and about 2–3 behind; hind femora with about 11



Text-fig. 46.—Half of ventral view and side view of hypopygium of ♂ *Bombylius latipectus* n. sp.

gleaming golden spines below from near base to apex; claws rather strongly developed, rather rapidly bent down, almost at right angles, nearer apex and with the pulvilli extending beyond middle of claws, but not reaching their bent down apices. *Hypopygium* (text-fig. 46) with the inner apical angles of basal parts angularly projecting; beaked apical joints elongated, narrowish, with acute apices which are directed downwards and outwards and with longish hairs on beaked joints above towards their bases; aedeagus without a ventral process below; basal strut somewhat racket-shaped.

Type in the South Africa Museum.

Length of body: about 10 mm.

Length of wing: about 9 mm.

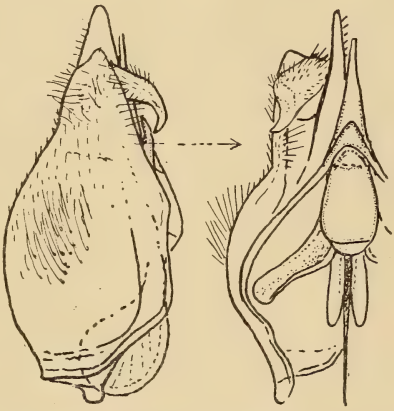
Locality.—Namaqualand: Kamieskroon (Mus. Exp., September 1930).

This species is recognised by its rather large and well-developed thorax, somewhat subopaquely greyish hyaline and yellowish-tinged wings, reddish hind margins on sides of tergites, long proboscis and strong claws. From *aurimystax* it differs in having a shorter and less produced face and separated eyes, reddish hind margins on sides of abdomen, and more rapidly bent-down claws.

1 ♂ *B. inermis* n. sp.

Body black, with the face, entire antennae, proboscis and head below also black; scutellum, hind margins on sides of tergites 2, 3, and to a certain extent 4, hind margins of sternites 1–3 and apical part of genital segment reddish; legs with the coxae and bases of femora and at least basal half of front femora blackish, the apical parts of femora, the tibiae, and tarsi yellowish, the hind tarsi and apical parts of the others slightly more brownish; pubescence shortish on occiput and thorax above, where it is dense and with a shorn-off appearance, not very long on abdomen, pale yellowish on body above, gleaming sericeous yellowish in certain lights, becoming paler towards apex of abdomen, that on face and antennae also yellowish, that on pleurae, head below, and coxae only paler than above and more straw-coloured yellowish, becoming distinctly more whitish on pectus, that on venter paler yellowish, but slightly more whitish on sides basally, with the sparse and fine depressed pubescence above gleaming whitish or sericeous yellowish in different lights, the scaling on legs whitish, with the bristly elements, excepting only post-alar bristles, poorly developed and not differing from rest of pubescence;

wings vitreous hyaline, with the costal cell and base subopaquely yellowish whitish, with the basal comb yellowish, the veins dark brownish, paler basally, with the discal cross vein beyond middle of discoidal cell, the first posterior cell rather acute apically, with the squamae subopaquely yellowish white and fringed with creamy yellowish hairs; halteres pale yellowish brown, with very pale yellowish knobs. *Head* with the eyes contiguous above, at least inner margins are contiguous, but nevertheless appearing narrowly separated by a narrow space about as broad as front ocellus for a distance at least as long as ocellar tubercle; face rather short and shorter than combined length of antennal joints 1 and 2; antennae with joint 1 shortish, only about 2 times as long as 2, with 2 longer than broad, with joint 3 spindle-shaped, broadest just before middle, more rapidly narrowed apically than basally, ending apically in a very small conical element bearing a short style; proboscis about 4 mm. long, its labial part below finely but visibly strigilose. *Legs* with shortish hairs on femora below, without any spines on front femora below; middle ones with about 2–3 short spines on each side below nearer apex; hind femora with about 10 spines below from near base to apex; claws distinctly rapidly bent down, almost at right angles, nearer apex, with the pulvilli reaching apices of claws. *Hypopygium* (text-fig. 47) with the basal parts rather broadish in neck region, with longish hairs dorsally on each part, with the inner apical angles of basal parts projecting prominently, with the beaked apical joints broad and leaf-like, their apices curved downwards and slightly outwards; aedeagus with scarcely a distinct ventral process below.



Text-fig. 47.—Side view and half of ventral view of hypopygium of ♂ *Bombylius inermis* n. sp.

Type in the Transvaal Museum.

Length of body: about 7 mm.

Length of wing: about 6½ mm.

Locality.—Little Karoo: Willowmore (Brauns, 25/11/22).

2 ♀♀ *B. rufescens* n. sp.

Body with the eyes, greater part of occiput, third antennal joints, proboscis above and apically below, thorax above, base of scutellum, and basal parts of tergites 2–3 or 4 black, with a spot on each side of ocellar tubercle, anterior part of frons, entire face, genae and head below, antennal joints 1 and 2, greater part of proboscis below, humeral part and even sides of thorax above on each side above and in front of wings, the post-alar calli, obscurely across base of thorax, greater part of scutellum, the very broad hind margins of all the tergites and even greater part of apical half of abdomen above, the entire sides of abdomen, the greater part or entire pleurae and greater part or entire venter reddish yellow to reddish; legs, including coxae, entirely yellowish or reddish yellow; pubescence shortish, predominantly straw-coloured to whitish on thorax above, that on abdomen slightly more yellowish to sericeous yellowish, the macrochaetal bristles, post-alar bristles and those on scutellum and transversely on abdomen above even deeper yellowish, gleaming more golden to deep golden yellowish, the pubescence on head above, antennae and face golden yellowish to yellowish sericeous, that on head below and body below whitish, that on sides of abdomen basally sometimes also whitish in certain lights, that on venter whitish, especially towards base, with the depressed, fine scaling on abdomen above whitish to pale sericeous yellowish, even more golden towards apex, sericeous yellowish to golden on frons, more distinctly whitish on thorax above; wings hyaline, but with a slight whitish subopacity in certain lights, with the base, costal cell, and basal half of first basal cell more subopaquely very pale yellowish whitish, with the basal comb very small, reduced and yellowish, the veins reddish or reddish brown and paler, more yellowish reddish basally, with the discal cross vein at about, or just beyond, middle of discoidal cell, with the squamae opaquely yellowish white and fringed with creamy or sericeous hairs; halteres yellowish and with very pale yellowish knobs. *Head* with the interocular space comparatively narrow, about 3 times as broad as ocellar tubercle or about 2 times as broad as combined length of antennal joints 1 and 2; face shortish and subequal in length to combined antennal joints 1 and 2; antennae with joint 1 short, only about, or scarcely, $2\frac{1}{2}$ times as long as joint 2, with 2 transverse, with 3 subspindle-shaped, broadest near base, gradually narrowed apically, ending apically in a small conical basal element, somewhat on dorsal side of apex of joint 3, which terminates

in a style; proboscis about 2½ mm. long. *Legs* with sparse and shortish hairs on femora below, with about 2 spines in front on middle femora and about 4–5 spines more or less in apical half on hind ones below; front tarsal joints hairy but not appreciably thickened; claws rapidly bent down, almost at right angles, nearer apex, and with the pulvilli reaching their bent-down apices.

Type in the South African Museum.

Length of body: about 6–7 mm.

Length of wing: about 7 mm.

Locality.—South West Africa: Kaokoveld; Warmbad (Mus. Exp., Feb. 1925).

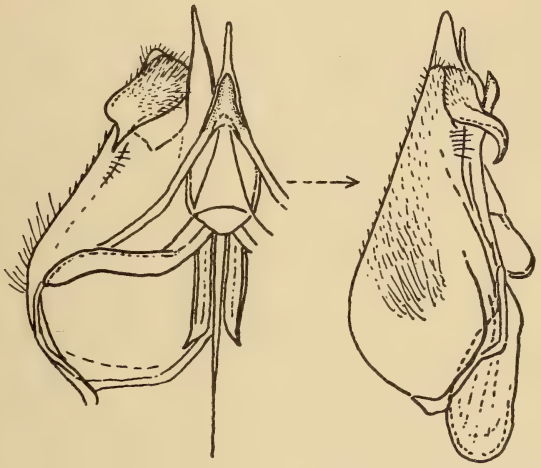
Easily recognised and distinguished from all other species by the extensive red on body and especially on abdomen and pleurae. From *atronotatus* it differs in being smaller, in not having the black on abdomen in a series of spots, and in not having an angularly acute first posterior cell.

2 ♂♂ 9 ♀♀ *B. muscoides* n. sp.

Body black,with antennal joints 1 and 2 in ♂♂ sometimes blackish or dark, with antennal joints 1 and 2 in ♀♀, front margin or front part of face in both sexes, front part of head below, especally in females, greater part of or entire scutellum, hind margins of all the tergites in ♀♀ and some ♂♂, or at least hind margins of tergites 2–7 in ♀♀, much broadened on sides and even very broad, the broad sides of tergites 2 and 3 in some ♂♂ or obscure sides of tergites 2 and 3 in ♂♂, the hind margins of the sternites in both sexes, and infusions on the pleurae to a variable extent, especially on metapleurae and especially in some ♀♀, but also in some ♂♂, yellowish red or pale reddish; legs with the coxae, femora, tibiae, and greater part of tarsi in ♀♀ yellowish, the apical half of hind tarsi or even entire hind tarsi and the last 2 joints of the others darkened and more brownish, with the coxae, trochanters, and femora to very much beyond the middle, and almost entire hind femora distinctly blackened in some ♂♂, only the apices of femora, the tibiae, and basal parts of tarsi being yellowish, with the femora and especially the hind ones in some ♂♂, however, less extensively darkened, with almost entire hind tarsi in ♂♂ usually more brownish, with the spines and spicules in both sexes usually almost pallid, even tending to be whitish; pubescence shortish, denser on thorax in ♂♂ and with a cropped off appearance, that on abdomen in ♂♂ denser and longer than in ♀♀, that on antennal joint 1 below tending to be

long in both sexes, that on face not very dense and even sparser in ♀♀, with the transverse bristles across hind margins of tergites in ♀♀ more distinct and conspicuous and longer than rest of shortish or the depressed pubescence on abdomen, with the pubescence on body above gleaming sericeous whitish in some ♂♂ to pale sericeous yellowish in others, that in ♀♀ pale sericeous yellowish to almost pale golden yellowish, that on head below and body below whitish to frosty whitish, distinctly contrasting in whiteness with that on body above, that on venter straw-coloured to whitish, with the macrochaetal, post-alar, scutellar, and transverse bristles on abdomen in ♀♀ especially deeper yellowish or gleaming golden yellowish, with the depressed, fine scaling on frons, thorax, and densely on abdomen above in ♀♀ pale, gleaming pale sericeous yellowish to brassy yellowish, that on venter more whitish, the scaling on legs whitish; wings vitreous hyaline, with a very faint whitish subopacity in certain lights in some specimens, with the basal part up to end of costal cell in some ♂♂ with a very faint touch of yellowish, with the base, costal cell, and basal half of first basal cell in both sexes subopaquely whitish to pale yellowish whitish with the basal comb yellowish, the veins brownish, becoming paler and more yellowish basally, with the discal cross vein a little or even a good distance beyond middle of discoidal cell, and with the first posterior cell distinctly angularly acute in some specimens and more so in ♂♂, with the squamae opaquely pale yellowish white to pale yellowish and fringed with whitish to creamy hairs; halteres yellowish and with whitish knobs. *Head* with the eyes in ♂♂ in contact above for a short distance, slightly less than, or about, length of ocellar tubercle from where the inner margins diverge gradually at first and then more rapidly, with the interocular space on vertex in ♀♀ rather narrow and less than 2 times as broad as combined length of antennal joints 1 and 2, the inner margins only gradually diverging apically, the frons thus also comparatively narrow; facial region comparatively narrowish, the face shortish and shorter than combined length of antennal joints 1 and 2; antennae with joint 1 shortish, only about $1\frac{1}{2}$ times, sometimes a little longer and almost 2 times, as long as 2, with 2 rather elongate and distinctly longer than broad, with joint 3 more or less distinctly spindle-shaped, broadest just before middle, then less narrowed basally than apically, more attenuately narrowed apically, especially in ♂♂, ending apically in a distinct conical element bearing a short style; proboscis rather stoutish, about 3 mm. long, entirely black or dark, its labial part distinctly and visibly finely strigilose. *Legs*

with only shortish hairs on femora below, without any visible spines on front femora below, with about 2–4 on middle ones in front and with about 7–9 spines on hind ones from near base to apex; claws rapidly bent down, almost at right angles, nearer apex, and with the pulvilli reaching their bent-down apices; front tarsal joints in ♀♀ comparatively conspicuously thickened. *Hypopygium* of ♂ (text-fig. 48) with the inner apical angles or processes of basal parts prominently projecting apically and provided with setae above and below; beaked



Text-fig. 48.—Half of ventral view and side view of hypopygium of ♂ *Bombylius muscoides* n. sp.

apical joints leaf-shaped, broadish, their apices acute and directed slightly outwards and downwards, slightly depressed above; aedeagus with the slender apical part not reaching apices of inner apical angles of basal parts, the aedeagus with a median ventral lobe-like process which is bluntly pointed apically.

Types in the South African Museum.

Length of body: about 6–9 mm.

Length of wing: about 6½–8 mm.

Locality.—South West Africa: Kaokoveld; Kamanyab (Mus. Exp., March 1925) (Holotype); Kamanyab (Mus. Exp., Jan. 1925); Cayimaeis (Mus. Exp., March 1925) (Allotype); Kaross (Mus. Exp., Feb. 1925): Ovamboland; Ondongua (Mus. Exp., Jan. 1923): Damaraland; Outjo (Mus. Exp., Jan. 1925).

This species is easily recognised by its spindle-shaped third antennal joints, narrow interocular space and frons in ♀♀, red hind margins

of tergites, blackened femora in ♂♂, apically acute first posterior cell, etc. The species appears to be slightly variable, especially in the ♂♂, in the colour of the pubescence, blackened femora, and in the extensiveness of the red on abdomen. The ♀♀ bear some superficial resemblance to members of Muscid-flies.

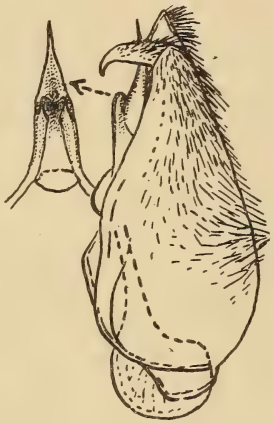
B. paterculus Walk.

(P. 196, Insect. Saund. Dipt. iii, Tab. V, fig. 8, 1852.)

Walker's original description of this species is so vague and unsatisfactory that it is impossible to determine his species. It was referred by him to *Parisus*, a genus which he erected to contain it and which was subsequently sunk as a synonym of *Bombylius*. For the identity of this species there is nothing to rely upon except a ♀-specimen, in the South African Museum, labelled and determined by Bezzi as *paterculus*, and also from the keys and short notes in the Ann. S. Afr. Mus., vol. xviii, pp. 14 and 20 and in The Bombyliidae of the Ethiopian Region, p. 47. The identity of this species is thus very doubtful, and what is referred to it in this paper may prove to be an entirely different species from that described by Walker. In view of the fact that there are several species in South Africa with red hind margins to the abdomen, reference to this character, as a distinguishing feature of *paterculus*, is valueless. According to Walker's description, apparently only the tip of the abdomen of his specimen is reddish ("tawny"), and he states nothing about the hind margins being red. Walker's description may thus refer to any of the species with reddish hind margins and reddish apices to the abdomen dealt with in this paper, including even the specimens referred to *fucatus* Bezz. and *imitator* n. sp. The specimens, which are provisionally referred to *paterculus* in this paper and agreeing with Bezzi's labelled specimen, agree in the following particulars:—

Body black; antennal joint 1 and often 2, face and head below, the proboscis below, the scutellum, posterior calli, the propleurae, upper part of sternopleuron on to hypopleuron and the posterior part of mesopleuron to a variable extent, the narrow or broadish hind margins of abdominal segments above, the sides of abdomen fairly broadly and constantly, and the hind margins of ventral segments reddish; legs entirely yellowish in both sexes, excepting only the black two last tarsal joints and apices of claws; pubescence somewhat shortish and shorn off in appearance above in ♂♂, with distinct transverse

rows of bristles visible on the abdomen in ♀♀ at least, yellowish sericeous, pale golden yellow to deep golden, that on body below slightly paler than above, especially just above the coxae, but often scarcely whitish even there, that on face yellow to deep golden yellowish even in some ♂♂, often, however, more sericeous yellowish, with the bristles on body yellow or slightly more golden yellow than the rest of the hair, with the depressed pubescence on abdomen above also yellowish; integument usually with a slightly bluish submetallic sheen, shining through under the greyish bloom; wings tinged distinctly yellowish to pale yellowish brown in ♂♂, leaving only the apices and hind border more hyaline, more hyaline in ♀♀, with the veins reddish yellow to even dark brownish, becoming paler towards base, with the squamae opaquely yellowish to pale yellowish brown and fringed with yellowish hairs. *Head* with the eyes in ♂♂ separated above, at narrowest point, about as broad as narrow front part of tubercle or as broad as front ocellus, then rapidly diverging anteriorly, in ♀♀ about, or even more than, $3\frac{1}{2}$ times as broad as tubercle; proboscis about 3–4 mm. long; antennae with joint 1 shortish, about $2\frac{1}{2}$ to 3 times as long as joint 2, with joint 3 about, or a little less than, $1\frac{1}{2}$ times as long as 1 and 2 combined, broadest in basal half, gradually tapering apically, but not markedly broadened basally as in *transitus* n. sp., with the style short and often yellowish. *Wings* with the discal cross vein just beyond middle of discoidal cell and with the second longitudinal vein more or less straight and the first posterior cell usually more obtuse than in *transitus* apically. *Legs* with pubescent hairs on femora below, especially in ♂, without any spines on front femora below, with about 1–2 spines on anterior lower face of middle ones and with about 5–9 (usually about 5–7) spines on hind ones below; front tarsal joints in ♀ distinctly, though slightly, thickened; claws rather rapidly curved downwards at their apices, and the pulvilli extending a little beyond middle of claws. *Hypopygium* of ♂ (text-fig. 49) with a slight process below aedeagus.



Text-fig. 49.—Side view of hypopygium and ventral view of aedeagus of ♂ *Bombylius paterculus* Walk.

Length of body: about 5–8 mm.

Length of wing: about $5\frac{1}{2}$–8 mm.

Locality. — Cape Province to Port Elizabeth, Southern Karoo, Western Cape Province to Namaqualand and even south O.F.S. (In the Imperial Institute, Transvaal, British and South African Museums.)

An attempt is made in the key to distinguish this species from nearly related species such as *transitus* n. sp. and *pruinosulus* n. sp. described below.

9 ♀♀ *B. transitus* n. sp.

Body black, with antennal joints 1 and 2, face, genae, head below, sometimes extreme base of proboscis obscurely, post-alar calli, entire scutellum, hind margins of tergites, discally narrow and very broad on sides and more extensively so on sides of tergites 1–4, a more or less longitudinal band along pleurae above coxae, the greater part of metapleural part and the broad hind margins, or even entire sternites reddish or reddish yellow; legs, including coxae, almost entirely yellowish, only apical parts of tarsi more brownish; pubescence shortish but not with a closely cropped appearance on thorax, predominantly pale sericeous yellowish to golden yellowish above, that on abdomen even more yellowish, that on frons, antennae, and face pale sericeous yellowish to deeper sericeous yellowish, that on sides of abdomen appearing deeper yellowish to slightly fulvous, due to the reddish integument showing through, that on head below and body below whitish to straw-coloured whitish and contrasting with that on body above, that on venter basally also whitish, with the bristly elements on abdomen gleaming pale golden yellowish to even deep golden, with the fine, depressed, dense scaling on abdomen above sericeous yellowish to golden yellowish, gleaming sericeous yellowish on frons, and paler or more whitish on thorax in front, with the scaling on legs whitish; wings vitreous hyaline, with the base, costal cell, and basal half of first basal cell subopaquely whitish to yellowish whitish, the basal comb yellowish, the veins dark brownish to reddish brown, paler and more pale yellowish red to yellowish basally and along first longitudinal vein, with the discal cross vein much beyond middle of discoidal cell, with a tendency for first posterior cell to be acute or angularly acute apically in some specimens, with the squamae opaquely yellowish and fringed with creamy yellowish to pale sericeous yellowish hairs; halteres yellowish and with very pale yellowish knobs. *Head* with the interocular space on vertex a little more than 3 times as broad as ocellar tubercle or only a little more than 2 times combined length of antennal joints

1 and 2; face short and subequal in length to, or even shorter than, combined antennal joints 1 and 2; antennae with joint 1 short, only about 2, or a little more, times as long as 2, with 2 tending to be a little longer than broad, with 3 almost spindle-shaped, broadest a little before middle, narrowed basally but more attenuately apically; proboscis about 3½–4½ mm. long, its labial part very finely strigilose. *Legs* with only shortish hairs on femora below; middle femora with about 4 spines in front below; hind ones with about 8–12 spines below from near base to apex; front tarsal joints rather conspicuously thickened; claws rapidly bent down, almost at right angles, nearer apex and pulvilli reaching their bent down apices.

Type in the Transvaal Museum, paratypes in the British and South African Museums.

Length of body: about 6½–9 mm.

Length of wing: about 6–7½ mm.

Locality.—West Transvaal: Delarey (Brauns, Jan. 1917) (Type). Great Karoo: Murraysburg Distr. (Mus. Exp., March 1931). N.E. Karoo: Aliwal North (Turner, Dec. 1922); Lady Grey (Nel, Dec. 1924). O.F.S.: Bloemfontein (Irving, 25/3/21). South West Africa: Outjo (Mus. Exp., Jan. 1925).

This species is quite distinct and easily recognisable by the extensive red on the sides of abdomen, which is usually conspicuous as a broad, conspicuous, quadrangular red patch on each side from tergite 2–4, the red even sometimes extending on to disc. The red if not in a quadrangular patch is at least broad and extensive on these tergites. The species is fairly widely distributed and is thus to a certain extent slightly variable, the red on sides being more extensive in some specimens. The red appears to be more extensive in specimens from the Transvaal, O.F.S., and South West Africa, and in these specimens the first posterior cell is also more acute apically.

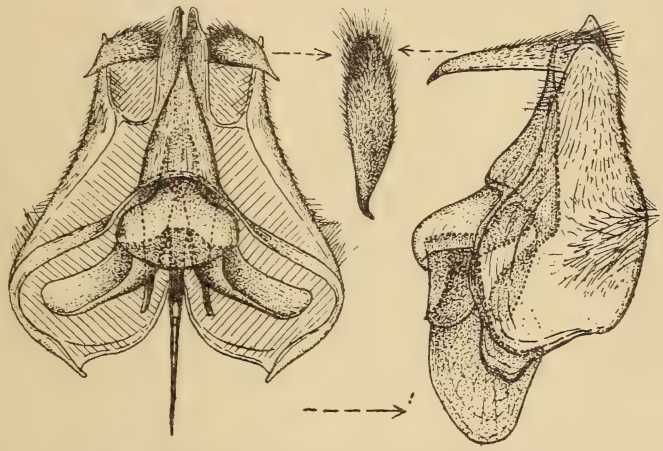
The ♀-paratype from Bloemfontein was labelled "*Bombylius fucatus*" by Bezzi. This specific determination is obviously wrong, for *fucatus*, according to Bezzi in his keys, has no red hind margins on the abdominal segments. In Bezzi's keys it runs down to *paterculus* Walk. and not *fucatus* Bezz. From ♀♀ of *paterculus* Walk., as defined in this paper and according to Bezzi, it differs in having a distinctly narrower interocular space, which is only about 2 times as broad as combined length of antennal joints 1 and 2 or slightly less than 1½ times as long as antennal joint 3 (slightly more than 2 times as broad as joints 1 and 2 combined or as broad as about 1½ times length of joint 3 in *paterculus*), in having antennal joint 1 distinctly

shorter and not quite $2\frac{1}{2}$–3 times as long as 2, in having joint 3 distinctly broader just before middle and thus more subspindle-shaped, in having the proboscis entirely black and more visibly finely strigilose below, in having the red on sides of tergites 2–4 broader and more conspicuous, the first posterior cell on the whole more acute apically and the front tarsal joints on the whole more thickened. From the ♀ of *pruinosulus* n. sp. (below) it differs in having more extensive red on sides of abdomen, narrower interocular space, shorter first antennal joints, more spindle-shaped third antennal joints, claws which are more rapidly bent down near apex, etc.

1 ♂ 1 ♀ *B. pruinosulus* n. sp.

Black, with a pale bluish grey bloom, especially on thorax, above; anterior part of face in both sexes and to a certain extent front part of head below in ♀, antennal joint 1 and to a certain extent 2, the scutellum (excepting only a broadish black basal macula), the narrow hind margins of abdomen above, which are more broadened on sides and the hind margins of ventral segments reddish, the extreme apical margins of the segments above, however, more ivory whitish and the hind margins on venter in ♂ at least more distinctly ivory yellowish; proboscis below and the palps also yellowish or pale yellowish brown; legs yellowish, with the coxae and basal parts of front and middle femora in ♂, however, more brownish or darkened, with the apices of the tarsi also brownish in both sexes; pubescence short and with a shorn-off appearance above on thorax in ♂ especially, pale sericeous or silvery whitish above on front part of body in ♂, more straw-coloured in ♀, that on scutellum and abdomen above gleaming pale sericeous yellowish in ♂, tending to be more yellowish laterally and becoming more whitish apically, slightly more yellowish in ♀ due to the more yellowish transverse bristles on abdomen, especially on the sides, that on face gleaming whitish sericeous in ♂, slightly more yellowish sericeous in ♀, and that on frons in ♀ more yellowish, with the bristles in front of wing-bases in ♀, and on scutellum in both sexes more distinctly yellowish, with the hair on head below and thorax below markedly white, almost frosty white, especially in ♂, contrasting much with that above, that in metapleural parts also markedly whitish, and that on venter whitish in ♂, becoming more yellowish towards apex in ♀; wings slightly subopaquely whitish, but distinctly tinged yellowish at base, in costal cell, and across to apex of second basal cell and including second basal cell in ♂, more hyaline

in ♀, squamae opaquely pale yellowish white and fringed with whitish hairs; halteres yellowish, with almost white knobs. *Head* with the eyes in ♂ in contact above in front of tubercle for a distance less than the length of tubercle, then rapidly diverging anteriorly, the eyes somewhat flattened above and with the upper facets much coarser than lower ones, with the interocular space in ♀ a little more than 3 times as broad as tubercle; antennae with joint 1 about 3, or a little more, times as long as joint 2, with joint 3 tapering gradually to



Text-fig. 50.—Ventral and side view of hypopygium and dorsal view of beaked apical joint of ♂ *Bombylius pruinosulus* n. sp.

apex; proboscis about 3½–4½ mm. long. *Legs* with longish white hairs on femora below, especially in ♂, without any spines on front femora below, with about 2 or 3 spines on middle ones below and with about 8–9 spines on hind ones below from near base to apex; claws rather slender in ♂, rather gradually curved downwards apically in both sexes, with the pulvilli extending to beyond middle of claws. *Hypopygium* of ♂ (text-fig. 50) resembles that of *marginellus*, *aemulus*, *anomalus*, etc., in the long and slender-beaked apical joints and in having no ventral aedeagal process.

Types in the South African Museum.

Length of body: about 8–9 mm.

Length of wing: about 8–9 mm.

Locality.—Bushmanland: Jakhals Water (Lightfoot, Oct. 1911).

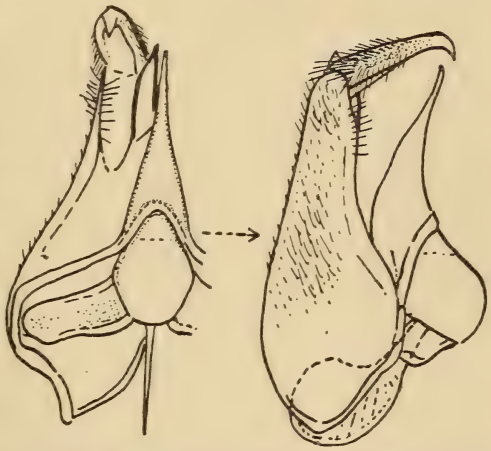
The ♂ of this species is certainly distinct from that of the species which I referred to *paterculus* in having the eyes in actual contact above and in the silvery whitish pubescence above. The ♀ is not

very easily separated from *paterculus*. It appears to differ in having a darker face, predominantly black pleural parts, no extensive broad red on sides of abdomen, claws which are gradually and arcuately curved, in having a larger basal comb to wings and in being slightly larger.

1 ♂ *B. pallescens* n. sp.

Entire body and to a certain extent proboscis below muddy or sienna brownish, the scutellum and abdomen above slightly paler and more ochreous brownish, with the hind margins of the tergites showing narrowly through more dark brownish; face, antennal joints 1 and 2, genae, head below, and venter even paler and more yellowish brownish, the hind margins of sternites pale yellowish whitish; antennal joint 3, greater part of proboscis above, and to a certain extent the eyes black; legs with the coxae brownish yellow, the bases of front and middle femora pale brownish yellowish, their apical parts, the hind femora and the tibiae and tarsi more yellowish, only the last 2 tarsal joints and apical part of claws blackish, with the spines and spicules gleaming golden; pubescence dense and shortish, that on thorax above with a more or less shorn-off appearance, that on abdomen dense, predominantly gleaming velvety sericeous whitish on body above, that on sides of thorax above wings and on scutellum with very faint sericeous yellowish gleams in certain lights, that on abdomen tending to become more distinctly snow whitish apically, that on ocellar tubercle, antennal joint 1 and face gleaming pale sericeous yellowish, that tuft or puff-like on mesopleuron in front of wings appearing more yellowish than pubescence on thorax above, the pubescence on head below and on entire body below and in metapleural tuft more contrasting and frosty whitish though gleaming sericeous, with the scaling on legs whitish; wings shining, with a distinct whitish subopacity which is more pronounced than in any of the preceding species, with the base and costal cell more distinctly subopaquely whitish, with the basal comb well developed and yellowish but gleaming whitish in certain lights, the veins very pale brownish yellowish or appearing pallid, with the discal cross vein a good distance beyond middle of discoidal cell, with the second longitudinal vein not very rapidly bent up at its end, with the squamae opaquely pale yellowish and densely fringed with almost snow white hair; halteres very pale yellowish white and with whitish knobs. *Head* with the eyes narrowly separated above by width of front ocellus for

a very short distance, the inner margins then rapidly diverging apically; face rather longish and much longer than combined length of antennal joints 1 and 2; antennae with joint 1 short, only about 3 times as long as 2, with 2 transverse, with 3, including terminal elements, quite 2 times as long as 1 and 2 combined, slightly curved, gradually narrowed apically, but rod-like to much beyond middle, ending apically in a rather conspicuous conical basal element passing into a shortish style; proboscis about 5 mm. long. *Legs* with dense hair on front and middle femora below, with 1 spine below towards apex on front femora; middle ones with about 3 spines in apical half below in front; hind femora with about 13–14 spines below from near base to apex, those before middle tending to be arranged in 2 rows, with 7–8 more widely separated spines in a row on inner side below; claws gradually and arcuately curved, the pulvilli rather shortish just about reaching, or extending a little beyond, middle of claws. *Hypopygium* (text-fig. 51) with the beaked apical joints elongate and narrowish, their apices acute and bent downwards, their dorsal surfaces not very hairy; aedeagus with the apical part slender and without any ventral process below.



Text-fig. 51.—Half of ventral view and side view of hypopygium of ♂ *Bombylius pallescens* n. sp.

Type in the Transvaal Museum.

Length of body: about 10 mm.

Length of wing: about 9 mm.

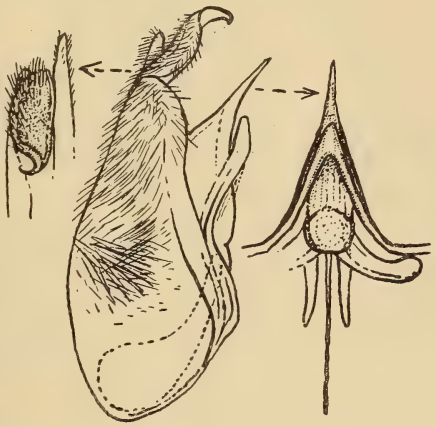
Locality.—Little Karoo: Calitzdorp Distr.; Matjesvlei (Brauns, Oct. 1921).

This unique specimen differs from all the preceding species in its muddy brownish or sienna brownish integument and subopaquely whitish wings. The integumentary colour appears to be natural and not due to the incomplete chitinisation or oxidation of teneral forms.

1 ♂ 1 ♀ *B. annuliventris* n. sp.

Integument of body more or less castaneous brownish; the thorax and pleural parts dark brownish; the scutellum and abdomen paler and more reddish or sienna brownish, the posterior calli on thorax and hind margins of scutellum even slightly paler; antennal joints 1 and 2, face, genae, and head below yellowish, the face being slightly darker than the pallid antennal joints; antennal joint 3, eyes and proboscis black, the latter slightly tinted reddish brown below; hind margins of abdominal segments above ivory-whitish, more distinct and conspicuous from segment 3 to apex, the margins on last 3 or 4 segments being also broader, all slightly more broadened on extreme sides where fold, between tergites and sternites, is also very pale, pallid to yellowish, with the hind margins of ventral segments also more broadly ivory whitish to yellowish; legs almost pallid, very pale yellowish, with a very slight pale yellowish brown tint towards bases of femora in ♂, with the spines pallid and the last 2 tarsal joints and apex of claws brownish; pubescence comparatively short, pubescent, and not very long on occiput and thorax, soft pale yellowish from side, that on occiput and thorax in ♂ slightly paler and, in certain lights, more creamy, that on antennae and head in front on both sexes very pale sericeous yellowish to straw-coloured yellowish, that on thorax above in ♀ with a slightly more golden tint, that on abdomen above distinctly deeper yellowish to golden yellow and with golden gleams in ♀, much paler and more creamy yellowish in ♂, with whitish gleams in certain lights and with that towards apex distinctly paler, the sides also appearing paler in certain lights, that on body below distinctly more whitish, becoming almost white on head below and pectus, that towards upper parts of pleurae and in metapleural tuft and on venter inclining to creamy yellowish, appearing even paler in certain lights, that on sides of venter in ♂ being distinctly more whitish, comparatively sparse on venter in both sexes, with the bristly hairs and bristles on thorax in front of wings, on posterior calli, on scutellum and transversely on abdomen coloured like the hair and more distinct in ♀, with the shorter, fine depressed or subdepressed pubescence on body above very pale and sparse, almost whitish in ♂, much denser, especially on abdomen, in ♀ and distinctly more yellow, that on frons in ♀ pale golden, more whitish sericeous in ♂; wings vitreous hyaline but with a distinct subopaque milky whitish tint, the base, costal cell, and basal half of first basal cell slightly more subopaquely whitish, the base being even very pale yellowish white, with the basal comb yellowish, the veins brownish, becoming

more pallid or yellowish towards extreme base, with the first posterior cell tending to be acute apically in ♂, with the discal cross vein a little beyond middle of discoidal cell, with the opaquely yellowish to pale yellowish brown squamae fringed with creamy yellowish hair; halteres yellowish, with whitish knobs. *Head* with the eyes in ♂ contiguous above for a distance about as long as ocellar tubercle, then diverging apically for a slightly shorter distance before diverging more rapidly, in ♀ slightly more than 3 times as broad as tubercle; antennae with joint 1 comparatively short, and in ♂ only about 2 times as long as joint 2 and about $2\frac{1}{2}$ times as long as 2 in ♀, with joint 3 almost 2 times as long as 1 and 2 combined, broad basally, but broadest just before middle and broader in ♀, then rapidly attenuated apically, with indications of fine whitish pubescence above towards base, with the first terminal joints situated obliquely on apex of 3, scarcely narrower than apex of 3, rapidly prolonged into a slender style, the other joints (2 and 3 itself) not separately visible; proboscis comparatively stoutish, about 2–$2\frac{1}{2}$ mm. long. *Legs* with only shortish and not conspicuous or long hairs basally below on femora; front femora unarmed below; middle ones with about 1 or 3 spines below; hind ones with about 4 spines below from about the middle to apex; front tarsal joints in ♀ compact and hairy, but not much thickened; claws with the apices rather rapidly bent downwards and with the pulvilli reaching apices of claws. *Hypopygium* of ♂ (text-fig. 52) with the beaked apical joints broad and flattened, slightly depressed above, the beak curved downwards and outwards; aedeagus with a medial lobe-like ventral aedeagal process below.



Text-fig. 52.—Side view of hypopygium and ventral view of aedeagus of ♂ of *Bombylius annuliventris* n. sp.

Types in the British Museum.

Length of body: about 7–8 mm.

Length of wing: about 7 mm.

Locality.—South West Africa: Damaraland; Okahandja (Turner, 1–12/1/1928).

This species is easily recognised by its castaneous brown colour, more reddish brown abdomen, of which the hind margins are ivory whitish or yellowish, the shortish, soft, and pale yellowish to pale golden yellow hair. From *pallescens* it differs in being smaller, in having the eyes contiguous above in ♂, shorter face, more spindle-shaped third antennal joints, shorter proboscis, more rapidly curved claws, etc.

GROUP 3.

B. micans F.

(Loew, p. 184, Dipt. Faun. Südafr. i, 1860; Bezzi, p. 25, Ann. S. Afr. Mus., vol. xviii, 1921.)

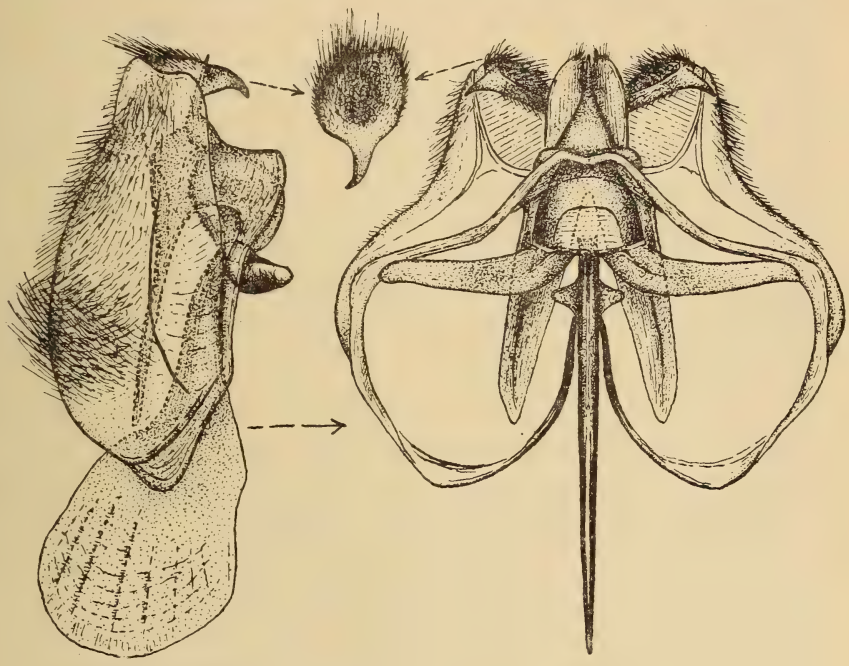
This and the following species are easily recognisable and characterised by the long sericeous or silvery gleaming, dense, and shaggy pubescence and well-developed bristles on the body and the more or less dimidiate wings, in which the anterior half is reddish brown, yellowish brown to brownish. They are also fairly large and striking Bombyliids, with predominantly yellowish femora and with fewer black hairs or bristles on body.

B. micans is characterised by having predominantly pale sericeous yellowish to very pale ochreous yellowish, gleaming pubescence above, which shows more or less three gleaming ochreous brownish or golden stripes on disc of thorax, with few black hairs or bristles on body, and these only on frons, sides of face above, on antennal joint 1 below, and sparsely intermixed tuft-like on sides of abdomen towards apex; wings with the basal comb yellowish and anterior yellowish brown infuscation extending into and occupying even greater part of marginal cell; legs entirely or predominantly yellowish, the femora not distinctly blackened at base.

Hypopygium of ♂ (text-fig. 53) is chiefly distinguished by the very prominent basal, somewhat indented, ridge on ventral part of aedeagus; beaked apical joints broad and foliate in basal half, deeply and foveately depressed above; inner apical part of basal part on inner side of beaked apical joints prominent; basal strut has a distinct ledge-like lateral process on each side near base.

The species appears to be slightly variable, and there appears to be a West Coast form, from Namaqualand, characterised by having more ochreous pubescence, no black bristles on ocellar tubercle, no black ones intermixed on frons, on sides of face or below joint 1 of the

antennae, with the hair on coxae also more ochreous, and the legs entirely yellow. A southern more typical form has paler and more sericeous yellowish or lemon yellowish pubescence, with distinct black intermixed bristles on tubercle, frons, antennae below, and on



Text-fig. 53.—Side and ventral views of hypopygium and apical view of beaked apical joint of ♂ *Bombylius micans* F.

sides of face, with paler hair on coxae, and with the bases of femora sometimes darkened at extreme bases.

Locality.—Western Cape Province to Namaqualand. (In the Transvaal and South African Museums.)

B. purpureus Bezz.

(P. 23, Ann. S. Afr. Mus., vol. xviii, 1921.)

This beautifully coloured species has been fully described by Bezzi. It is very near *micans*, but is chiefly characterised by its beautiful livery, which consists of gleaming sericeous yellowish to pale golden yellowish pubescence of which 3 bands on disc of thorax, the bristles on genae, intermixed ones on face, on antennal joint 1, on frons, on

ocellar tubercle, on occiput, front part of thorax, those on sides of thorax, on mesopleuron, on posterior calli, on scutellum and the transverse bristles on abdomen (especially in ♀♀) and to a certain extent those in upper part of metapleural tuft, on coxae and venter gleaming orange red, blood red to purplish red and with even transverse hairs on disc of abdomen in ♀♀ gleaming fiery red, with only a few black hairs on antennae below and some tufts on side of abdomen; wings with the basal comb also red, with the anterior infuscation on wings more uniformly ochreous brownish than in *micans*, and the squamae fringed with much reddish hair; legs entirely yellowish, without any black on femora, and with the spines reddish. *Hypopygium* of ♂ like that of *micans*, with the beaked apical joints, however, more flattened, only flattened above and not deeply foveately depressed, also more gradually narrowed to a downwardly and outwardly directed beak; basal strut is longer.

In the South African Museum.

Locality.—Namaqualand.

B. hypoleucus Wied.

(P. 340, Aussereurop. Zweifl. Ins., i, 1828; Loew, p. 185, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 25, Ann. S. Afr. Mus., vol. xviii, 1921.)

This is a very common species in the Western Province, Karoo, and Namaqualand, and may easily be confused with *micans*. Superficially it is almost indistinguishable from the latter. It differs, however, in important details. The general pubescence is paler, more gleaming sericeous or silvery whitish, with the brownish golden gleaming bands on thorax in ♀♀ at least more conspicuous, with the bristles on thorax usually darker yellowish and even more brownish, especially in ♀♀, with distinctly more numerous black bristly hairs and bristles on head, and with more numerous and more conspicuous tufts of black hairs and bristles on sides and apex of abdomen; wings with the basal comb black and not yellowish or ochreous, the brownish infuscation in anterior part also darker and not so extensive in marginal cell, the apical part of this cell hyaline; legs with the bases or even greater part of femora always blackened, sometimes even extensively. *Hypopygium* of ♂ differs from that of *micans* in that the hairs on basal parts are distinctly longer, the apical part of aedeagus is also longer and stouter and the basal strut is comparatively longer.

From Macquart's description of *dimidiatus* (p. 90, Dipt. Exot. ii,

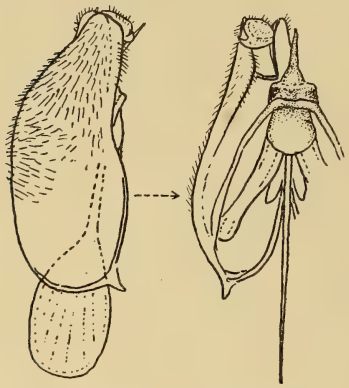
1840), it is almost certain that he had before him a form of *hypoleucus* or *melanurus* Lw. From the long series of *hypoleucus* before me it is evident that this widely distributed species is variable in the colour of its pubescence and the intensity or extensiveness of the black on the femora. Present in most of the collections.

1 ♂ 1 ♀ *B. darlingi* n. sp.

According to Loew's description of *micans* F., it is evident that these specimens, labelled by Bezzi as *micans* (p. 25, Ann. S. Afr. Mus., vol. xviii), do not belong to *micans* in the strict sense. I prefer to refer them to a separate species, which, however, does not differ very greatly from ochreous-haired forms of *micans*.

Body black, but with a bluish metallic and slightly bronzy sheen, especially on thorax and scutellum; bristles on sides of frons, on sides of face, and on joint 1 of antennae below, on anterior parts of thorax above, on sides in front of wing-bases (especially in ♀) more ochreous or reddish yellow, that on sides of frons and face with the tips slightly inclining to brownish, those on occiput, some on thorax and behind wing-bases as well as those on scutellum yellowish, those on abdomen much paler, more yellowish white and more whitish in ♂, hairs of mystax and bristles on genae pale yellowish white, those on thorax and abdomen above and on sides or upper parts of pleurae rich ochreous yellow, with a golden sheen, but more whitish in ♂ and also more pale yellowish white on abdomen of ♂, with a tendency for those on sides of thorax and along upper parts of pleural regions as well as in distinct stripes above on thorax of ♀ to be more orange yellow or more orange golden; flat scale-like pubescence around margins of eyes posteriorly and hair on lower parts of genae and head below snow white, those above front coxae on propleurae and to a certain extent on meso- and meta-pleurae in the middle and metapleural tuft, whitish, with the bristles and hairs on coxae and pectoral regions more yellowish, some long hairs on side of abdomen and below near apex in ♀ black and intermixed with dense yellowish ones, in ♂ with only a few scattered and scarcely visible black ones; wings hyaline, but with the anterior half up to discal cross vein and apex of second basal cell infuscated with pale yellowish brown, the infuscation not reaching the apex of marginal cell, with the base of costal cell and basal part of first basal cell and a roundish spot near apex of second basal cell feebly shining through opaquely whitish, with the basal comb yellowish and the fringes of squamae and alulae

whitish, with the infuscation on discal cross vein and basal cross vein of fourth posterior cell slightly darker than the rest of wing and these parts of the veins distinctly darker brownish black, with the rest of the veins dark brown, becoming paler and more yellowish basally; halteres yellowish, with the knobs paler and more whitish; legs and spines entirely yellowish, only the apical parts of tarsi dark blackish brown. *Head* with the interocular space in ♀ about subequal to length of antennae or a little more than 3 times as broad as tubercle, in ♂ much narrower, only about half as broad and only slightly broader than ocellar tubercle; antennae with joint 3 scarcely longer than 1 and 2 combined in ♀, a little longer in ♂, broadest just before middle in ♀, then gradually narrowed basally, slightly more rapidly apically, with the apical part slender and less than a third the length of joint and feebly dilated at apex, in the ♂ the broadest part is about at middle and the joint is comparatively shorter, more gradually narrowed apically, with the style very slender and feebly curved; proboscis slender and straight, more so and longer in ♂, about 4–4½ mm. long; genae with stout bristles and shorter, more slender ones on its lower parts, better developed in ♀; occiput with the bristles longer and stouter in the ♀. *Legs* with 3–4 spines in apical anterior part of middle femora; hind ones with 7–9 spines below from near base to apex; claws in ♂ slightly longer and more slender than in ♀. *Hypopygium* (text-fig. 54) with the lower margin of neck region of basal parts dilated, with dorsum of basal part finely haired; beaked apical joint hollowed out above, the apex acute, not very long, directed outwards and slightly upwards; aedeagus with the slender apex directed downwards, without a ventral aedeagal process, but the base subquadrate and the rim, continuous with the rami, not so prominent as in *micans*, with the dorsal basally directed aedeagal struts just visibly projecting; lateral struts narrow, slightly broadened apically; basal strut racket-shaped, projecting some distance beyond bases of basal parts.



Text-fig. 54.—Side view and half of ventral view of hypopygium of ♂ *Bombylius darlingi* n. sp.

Types in the South African Museum.

Length of body: about 9–10 mm.

Length of wing: about 10 mm.

Locality.—Cape Province: Darling (L. P. 1905).

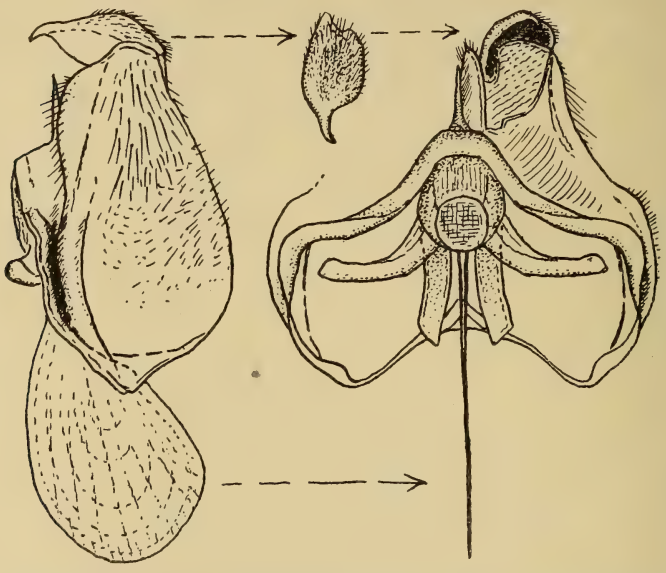
From *micans* it is distinguished by the ochreous, more orange yellow pubescence, by not having any black hairs on head, by the shorter proboscis, the absence of extensive black hair on the abdomen, the shape of third antennal joints, which are broadest before middle or at middle and with a very short apical slender part as in *melanurus* and *hirtus*, and which is also much shorter than in *micans*. The *hypopygium* also differs in that the basal parts are more slender, the beaked apical joints smaller and with their apices shorter, directed outwards and upwards, the aedeagus with the apical part more slender and directed downwards and the basal strut comparatively longer. From *melanurus* it differs by not having black hair or bristles on the head, by its deeper ochreous and more orange yellow pubescence, and without any extensive black hair on sides of abdomen, etc.

B. hirtus Lw.

(P. 185, Dipt. Faun. Südafr., i, 1860.)

Specimens in the South African Museum, from Namaqualand and N.W. Karoo, labelled by Bezzi as *hirtus*, do not strictly agree with Loew's description. A long series of specimens from George District, however, seems to agree much better with this description. It is thus evident that at least two distinct forms are found in South Africa: a western form occurring more or less in Namaqualand, N.W. Karoo, Central Karoo and the Western Province, and an Eastern form from the S.E. Coastal regions towards the Eastern Province. These two forms are roughly separated by the characters given in the key. The Western form differs from the Eastern form in having paler, more yellowish white hair on the head, also less black hair on the sides of frons and face, with the hair on thorax above comparatively paler and without any dark brownish golden stripes, the bristles on thorax pale yellowish and not dark reddish brown; the pectoral and pleural regions with less white hair; hair on abdomen above in ♀ more whitish sericeous, not subgolden or bronzy; wings with the infuscation in front half more yellowish, the basal part of costal cell and first basal cell not distinctly shining through whitish opaque and, moreover, first posterior cell is comparatively narrow and elongate and much longer than second posterior cell, whereas in *hirtus* (Eastern form) it is distinctly and comparatively broader

and shorter, only very slightly longer than second posterior cell. *Hypopygium* (text-fig. 55) with the beaked apical joints depressed above, but not roundly foveate, the apices bent downwards and slightly outwards, acute; aedeagus with the slender apical part not reaching inner apical processes, the basal rim, continuous with rami,



TEXT-FIG. 55.—Side view and part of ventral view of hypopygium of ♂ *Bombylius hirtus* Lw.

not very prominent, with posterior aedeagal struts visibly projecting posteriorly; lateral struts slender, rod-like; basal strut projecting considerably beyond bases of basal parts. The hypopygium of the Western form has slightly shorter hair on basal parts, and lower apical margin of neck region is more dilated, and the neck region is comparatively more slender, with the aedeagus more powerful, its basal rim more prominent.

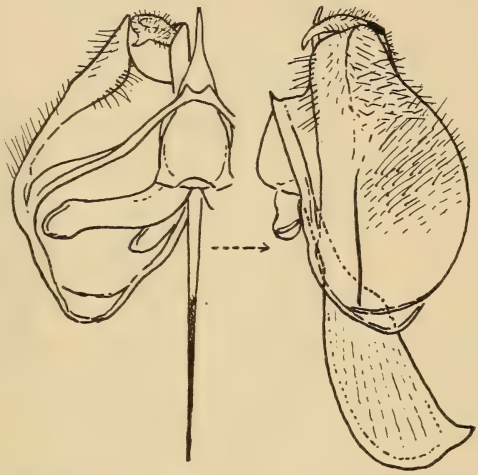
In the Transvaal, British and South African Museums.

B. melanurus Lw.

(P. 186, Dipt. Faun. Südafr., i, 1860; Paramonow, p. 73, Trav. Mus. Zool. Kiev., No. 11, 1931.)

A series of ♂♂ and ♀♀ from Calvinia, Namaqualand and the Western Province, in the Transvaal, British and South African Museums, agree very well with Loew's description of this species, not recorded

by Bezzi in his two monographs. The smaller forms resemble *hirtus* and can be distinguished from forms of this species by the characters given in the key. It is easily recognised by the predominant golden yellowish hair and by the more conspicuous and denser black hair on the sides, apex, and venter below of abdomen, by the more yellowish hair on head below and pectorial regions, by the darker brownish infuscation on anterior part of wings, comparatively short and broad first posterior cell, etc. Larger specimens resemble forms of *hypoleucus*, from which they may, however, be at once distinguished by the shape of the third antennal joint, which is thickest just before or at about the middle, the apical part being slender, more slender and much shorter than in *hypoleucus*, where the broadest part is in basal half and near base; infuscation on front part of wing being more uniform, leaving very little of apical part of marginal cell hyaline and by the opaque whitish spot at base of first basal cell being absent or obsolescent (very conspicuous in *hypoleucus*), etc. *Hypopygium* (text-fig. 56) with the beaked apical joints flattened, only slightly hollowed out above, with the beak relatively short, bent downwards and slightly outwards; aedeagus with the apical part projecting slightly beyond inner apical processes and with the apex slightly bent upwards, the base very prominent; lateral struts comparatively broad, the apices broadened; basal strut comparatively long, projecting considerably beyond bases of basal parts.



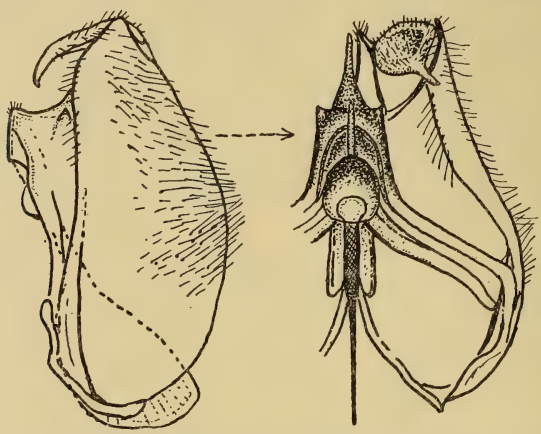
Text-fig. 56.—Half of ventral view and side view of hypopygium of ♂ *Bombylius melanurus* Lw.

B. servillei Macq.

(P. 88, Dipt. Exot. ii, Tab. VII, fig. 5, 1840, and Bezzi, p. 25, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species, characterised by the black spines on the legs and blackish brown infuscated anterior part of wings, as well as 3 constant,

rounded black spots on hind border of infuscated part and by the predominantly white and black pubescence, is a variable species, and at least three forms are distinguishable in the long series before me. The three forms are separated by the characters given in the key, but these characters are by no means typical for any form, bridging and transitional forms being frequent. There is a Northern and Karoo form, in Namaqualand, the N.W. Karoo and also Central Karoo, without any or with only very feeble indications of infuscations on



TEXT-FIG. 57.—Side view and half of ventral view of hypopygium of ♂ *Bombylius servillei* Macq.

the hyaline part of wing, with numerous, but variable, black or blackish bristles on genae, lower parts of genae, and anterior coxae. The two other, or Southern and Eastern forms, from the Western and Eastern Provinces, Southern Karoo and South Coastal regions, have more distinct infuscations on posterior half of wings, which are, however, more constantly present as 3 spots in some Western Province and coastal forms, without any black bristles on genae and front coxae and with an entirely white upper part of metapleural tuft, whereas in the third form there are usually only 2 infuscations, of which the one at the base of fourth posterior cell is larger and more constant than small one at apex of first posterior cell, with often a few black bristles on lower parts of genae and front coxae, with the bristles on abdomen above in the middle usually yellowish (in some Eastern Province specimens there is a tendency, in individuals of this third form, to be without black bristles on lower parts of genae and the front coxae, to have a slightly smaller spot at base of fourth posterior cell, and to have the bristles on abdomen above slightly

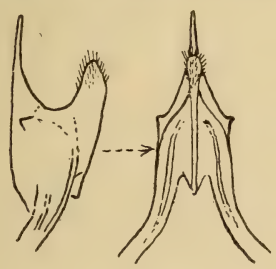
darker). *Hypopygium* (text-fig. 57) of the Southern form (Western Province form with large spot at base of fourth posterior cell) with the beaked apical joint like that of *micans*, *hypoleucus*, etc., but much less, and only feebly, depressed above and also more dorso-ventrally compressed; aedeagus more or less as shown in figure, with the apical part slender and reaching inner apical processes, with the ventral basal part prominent, projecting downwards as a lamellar, central carinate, ploughshare-like process, bearing a few very short setae anteriorly, with a prominent sharp process on each side towards anterior part of basal part; lateral struts comparatively slender, rod-like, the apices slightly bent downwards.

In the Transvaal, British and South African Museums and Imperial Institute.

B. pentaspilus Bezz.

(P. 29, Ann. S. Afr. Mus., vol. xviii, Pl. I, fig. 5.)

The undescribed ♀ resembles the ♂ in all respects except that the eyes above are separated by a space about $3\frac{1}{2}$, or a little more, times width of ocellar tubercle, the third antennal joint has the apical part less slender and comparatively shorter and more gradually narrowed apically; the occipital bristles and bristles on thorax distinctly longer and the bristles on abdomen above slightly darker, and the claws, as in ♀♀ of *servillei*, much shorter.



Text-fig. 58.—Side and ventral views of aedeagus of ♂ *Bombylius pentaspilus* Bezz.

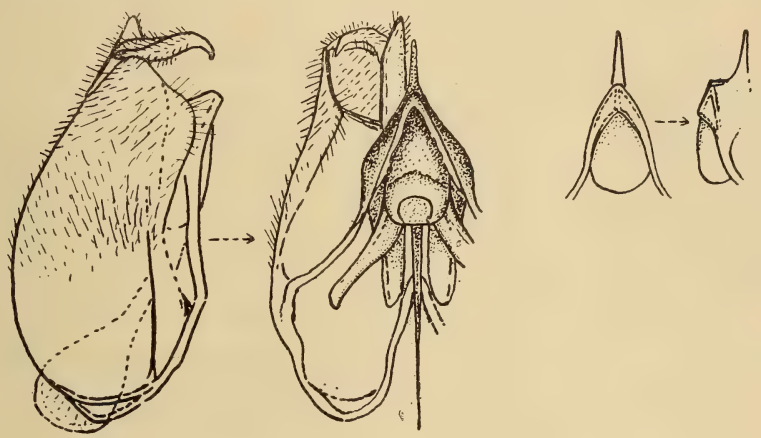
This species is without doubt very closely related to *servillei* and cannot be contrasted with *obesus* and *punctifer* as Bezzi has done in his keys and descriptions. The species, as a matter of fact, may be easily confused with *servillei* and can only be separated by the characters given in the key. *Hypopygium* (text-fig. 58) differs from that of *servillei* in that the beaked apical joints are less depressed above; aedeagus with the central lamellar ploughshare-like process longer and much produced anteriorly, somewhat like that of *fenestralis* n. sp. (cf. text-fig. 63), with more and longer setae at its apex and the lateral carinate ridge on each side on bases of rami more prominent; lateral struts a little shorter; basal strut slightly longer.

B. megaspilus Bezz.

(P. 26, Ann. S. Afr. Mus., vol. xviii, Pl. I, fig. 3, and p. 59, The Bombyliidae of the Ethiopian Region, fig. 3.)

This species, although easily recognised by its characteristically mottled or spotted wings, may easily be confused with very similarly spotted, but entirely different species, such as *ammophilus* n. sp. and *hottentotus* n. sp. described and distinguished below. The species *megaspilus* itself is unstable in certain characters, wing-pattern, etc., and at least one of these forms may almost be considered as a separate species. This unstability is most likely due to the fact that the species probably parasitises more than one host, even in the same area or region. In the series before me there are no less than 3 more or less distinct forms, which, however, are by no means constant in their characters. These are: (*a*) The type form, ♂♂ and ♀♀, from "Giftsberg, Van Rhynsdorp, S. Namaqualand," described and figured by Bezzi; (*b*) a Namaqualand form from "Kamieskroon," which is distinctly more whitish than the type form, with feebler and much less distinct yellowish hair on the disc of the thorax above and on sides in front of wings, with distinctly darker, even blackish bristles on scutellum and often distinctly black ones on hind margins of abdomen above, with the black hair on sides of abdomen and towards its apex much less extensive, with the spines on the legs often paler, more brownish, with a tendency for the large spot at base of fourth posterior cell to be more often confluent and continuous with infuscation at base of first basal cell and anterior basal part, with the infuscations along veins separating posterior cells 2 and 3 and 3 and 4 smaller, spot-like, and less developed, with the interocular space in ♂♂ slightly, but distinctly, broader than in type forms, the third antennal joints distinctly more slender, less thickened, in basal half, more rod-like in ♂♂ and also more slender in ♀♀, with the claws in ♂♂ slightly shorter, gradually curved to apex from about the middle and not rapidly curved downwards at apex only, and with the pulvilli also slightly shorter, with the hypopygium as shown in text-fig. 59, differing from that of the type form in having slightly shorter and fewer hairs on basal parts, with the ventral basal ridge or rim of the aedeagus, continuous with the rami on each side, more prominently and angularly produced forwards, inverted **V**-shaped; (*c*) a form, extending from the Western Province on the West to Namaqualand, is chiefly distinguished by the more extensive black hair on

the abdomen, darker bristles on body, slightly darker and larger spots on wings, of which the confluent spots at apex of anal and axillary cells and at base of fourth posterior cell are continuous with the anterior and basal infuscation, etc. In all other respects this last form differs very little from the typical form. These forms are more or less distinguished in the key, and do not show constant differences but grade into each other. *Hypopygium* is like that of



a. *b.*

Text-fig. 59.—(*a*) Side and half of ventral views of hypopygium of ♂ *Bombylius megaspilus* Bezz. (*b*) Aedeagus from below and side of the typical form.

the form shown in text-fig. 59, *a*, with the basal parts sometimes fairly long-haired, with the lower apical margin of neck region prominently dilated and the inner apical processes projecting; beaked apical joint longitudinally depressed in basal half, the acute apical part sharp, comparatively short; aedeagus of typical form (text-fig. 59, *b*) with the slender apical part not reaching apex of inner apical processes, with the ventral basal ridge or rim, continuous with the rami, more blunt and less produced than in the Namaqualand form.

In the Transvaal and South African Museums.

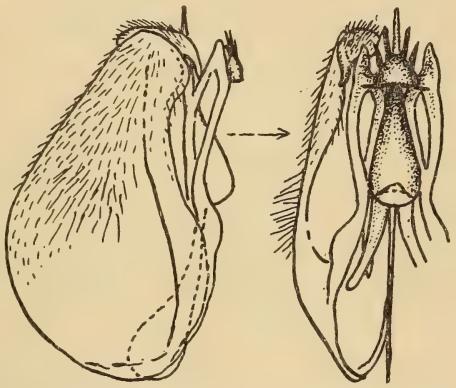
3 ♂♂ 16 ♀♀ *B. hottentotus* n. sp.

This species resembles *megaspilus* very closely, and may easily be mistaken for a small specimen of the latter. Compared with *megaspilus*, it is very much smaller, and is as follows:—

Body, like that of *megaspilus*, black; legs yellowish, with the

bases of the femora or their basal halves and the spines black; general effect of pubescence on body darker, more pale brownish, due to pale brownish yellow or subgolden hairs intermixed with black ones, the white hair above antennal joint 1, on occiput, anterior parts of mystax, genae, head below, on thorax and especially sides of abdomen much less extensive and less evident, with the hair on disc of thorax slightly darker, more brownish, the whitish hair on pleural regions less extensive, appearing more greyish, the scutellar bristles dark brownish or blackish, not yellowish, the black hair on abdomen comparatively more extensive, the white hair above of *megaspilus* being replaced by more pale yellowish brown to pale brownish sericeous hair, with the transverse bristles on hind margins above much darker, dark brownish or blackish, those towards apex tipped whitish, the hair and bristles on abdomen as a whole comparatively less dense and shorter; venter with the bristles darker and not distinctly or prominently yellowish laterally, with the central tuft of white hair at apex of abdomen shorter and not so conspicuous; wings with the same pattern of blackish brown spots (cf. fig. 3, p. 59, The Bombyliidae of the Ethiopian Region), but the spots are comparatively larger and more confluent and with the following differences: spot at apices of anal and axillary cells more transversely situated (i.e. more or less in line with long axis of wing) and more often in form of 3 confluent or contiguous spots, usually smaller than in *megaspilus* and more often distinctly separated from large spot at base of fourth posterior cell, with this large spot confluent and continuous with infuscation at base of discoidal and first basal cells, with the clear area near apex of second basal cell usually small, even minute, and not continuous with clear area in anal cell, with the large rounded spot at base of third posterior cell confluent and continuous with large one on discal cross vein and anterior infuscated part of wing, with the large rounded spot on base of vein between submarginal cells confluent with spot at apex of first posterior cell and rounded spot at about middle of hyaline part of marginal cell, with this latter spot almost always rounded and not connected with small rounded spot at end of second longitudinal vein by an extensive infuscation along the vein as in *megaspilus*, with the spot at apex of vein between submarginal cells usually rounded and not elongate (the large spots on the wing are thus more or less arranged in 3 transverse bands across wing). *Head* with the eyes in ♂♂ separated above by a space a little more than width of ocellar tubercle, but less than $1\frac{1}{2}$ times as wide, in ♀♀ about $3\frac{1}{2}$, or even a little more,

times as wide as tubercle; antennae with joint 3 in ♂♂ comparatively shorter than in *megaspilus*, slender, almost rod-like, slightly thickened at about middle and there often slightly bent, about 1½ times, or a little less as long as 1 and 2 combined, often with conspicuous flat white scaling, in ♀♀ comparatively less slender and more conspicuously thickened at about middle, much less than 1½ times as long as 1 and 2 combined, more often subequal to them, with the style slender and straight; proboscis about 3–5 mm. long, relatively shorter than in *megaspilus*. *Wings* with the vein between discoidal and third posterior cells constantly more or less bent at right angles at its base to meet the fourth posterior cell and provided at the bend with a short stump. *Legs* with 6–9 spines on hind femora below near base to apex, those towards base being often very long and slender, more slender than in *megaspilus*; claws gradually curved from about middle in the ♂♂, not bent down apically only as in *megaspilus* (type form); pulvilli well developed, extending beyond middle of claws in ♂♂, in ♀♀ much shorter and confined to base. *Hypopygium* (text-fig. 60) differs specifically from that of *megaspilus* (*see* text-fig. 59) chiefly in the structure of the ventral aedeagal process, which is in the form of a central arch-like process bearing two flattened spine-like setae * on each side apically and connected on each side with the lateral rami, which project as flattened lobe-like processes on each side and which are also fused on each side to basal part of aedeagus, with the slender apical part of aedeagus projecting beyond level of inner apical processes, with feeble dorsal basally directed aedeagal struts just visible projecting; lateral struts short and lobe-like; basal strut feeble, racket-shaped, and not projecting beyond bases of basal parts. (In the structure of the ventral aedeagal process this species comes in the category of *ammophilus*, *zoutpansbergianus*, and to a certain extent *capensis*.)



Text-fig. 60.—Side view and half of ventral view of hypopygium of ♂ *Bombylius hottentotus* n. sp.

* Setae slightly exaggerated in figure.—(Author.)

Types in the Transvaal Museum and some paratypes in the South African Museum.

Length of body: about 5–8 mm.

Length of wing: about 5–8 mm.

Locality.—Namaqualand: Van Rhynsdorp (van Son, July–Aug. 1927) (Types); Van Rhynsdorp (Brauns, Aug. 1927); Garies (S. Afr. Mus. Staff, June 1930); Kamieskroon (Mus. Staff, June 1930 and Sept. 1930); O'okiep. Saldanha Bay (Sept. 1913, L. P.).

This species is very variable in size and also in the nature of the vein between the discoidal and third posterior cells, which in a few specimens tend to be normal. The size is probably dependent upon the amount and nature of the larval nutrition during its parasitic existence, an existence which in itself is precarious in a desert, dry, and drought-stricken area. A ♂ and ♀ from " ? O'okiep" differ from the types in being slightly more distinctly whitish haired on the body, the black hair on abdomen is less extensive, with the vein between the discoidal and third posterior cells without an appendix at base. It probably only represents a local form.

1 ♂ 6 ♀♀ *B. ammophilus* n. sp.

This species also closely resembles *megaspilus*, but is even closer to *hottentotus*.

Body black; legs yellowish, the femora either entirely yellowish or blackened basally or even beyond middle; pubescence in ♂ on occiput, on joint 1 of the antennae above, face anteriorly, sides of genae, head below, anterior parts and sides of thorax above, on practically the entire abdomen above and on the pleural regions in part white, that on disc of thorax (in form of 3 short and broad stripes) and on scutellum and sides above wings pale brownish golden, with the bristles and hairs on propleurae and lower parts of metapleurae yellowish brown, the rest of the bristles on head, frons, sides of face, on antennae below, on genae, thorax above, coxae, the transverse bristles on hind margins of abdomen above black, only those towards the apex tipped with white, with the hair on sides of abdomen and at apex black, with the short pubescence on venter white, the other hairs being black, only those on sides more brownish; the ♀♀ with the hair on head is as in the ♂, but the bristles on occiput more pale yellowish brown, the bristles on genae often paler too, with some bristles on lower parts of genae also brownish to blackish, with the hair on thorax above whitish anteriorly, yellowish to brownish on

disc, that on scutellum and greater part of abdomen above pale yellowish white, having a sericeous golden or bronzy sheen in certain lights, the hair on sides below and at apex of abdomen black, with the bristles on the thorax above and scutellum more yellowish brown, intermixed antero-laterally with dark brownish ones, those on propleurae very pale reddish brown, those on abdomen above yellowish, brownish to dark brownish, those near apex and on the sides darker brown and tipped yellowish, with those on sides of venter yellowish or ochreous and intermixed with black ones, the hair on abdomen comparatively shorter and less extensive than in *megaspilus*; wings with the anterior infuscation and spots slightly darker than in *megaspilus*, more blackish brown, with a pattern similar to that of *megaspilus* (*see* text-fig. 3 in The Bombyliidae of the Ethiopian Region, p. 59), but even more like that of *hottentotus*, with the spots larger and more confluent like that of the latter, with the spot at apices of anal and axillary cells also smaller than in *megaspilus*, more or less in form of 3 contiguous spots, situated in line with the long axis of wing, scarcely touching and never confluent with large spot at base of fourth posterior cell, with this latter spot larger and also confluent and continuous with infuscation at base of discoidal and basal part of first basal cells and with anterior infuscation as in *hottentotus*, with the clear area near apex of second basal cell comparatively small and more often not confluent with clear area in anal cell as in *megaspilus*, with the large rounded spot at base of third posterior cell larger and never widely separated from large spot on discal cross vein, but just touching, even confluent with it in some specimens as in *hottentotus*, with the large rounded spot at base of vein between submarginal cells joined to large rounded spot at about middle of hyaline apical part of marginal cell and just touching or even connected with a spot (much larger than in *megaspilus*) at apex of first posterior cell, with the spot at apex of second longitudinal vein more often rounded as in *hottentotus* and more often not connected to the middle spot by an extensive infuscation along apical part of the vein; basal comb black; squamae in ♀ with very pale yellowish white fringes, in ♂ more whitish. *Head* with the eyes in the ♂ separated above by a space a little wider than ocellar tubercle, about as wide as in some forms of *megaspilus*, in ♀♀ about 3½ times as wide as ocellar tubercle; antennae with joint 3 a little longer than 1 and 2 combined in ♂, subequal in ♀♀, more thickened basally in ♂ than in *megaspilus*, broadest in ♂ nearer base, the apical third more slender than in *megaspilus*, in ♀♀ thickest at about middle and the apical

part more slender than in the latter, the style is slightly longer; proboscis about 5–6 mm. long, with a tendency to be bent downwards apically. *Wings* with the vein between discoidal and third posterior cells not bent sharply at right angles at its base and not provided with a stump. *Legs* with 3–6 black spines on anterior lateral surface of middle femora in apical half; hind femora with 8–12 black spines below from near base to apex, with those nearer base longer and in ♂ slightly more slender; claws in ♂ comparatively more slender and shorter than in *megaspilus*, more like that of *hottentotus*, more or less gradually curved from about middle, whereas in *megaspilus* (type form) only the apex is curved downwards; pulvilli shorter, but extending slightly beyond middle of claws, in ♀♀ confined to base. *Hypopygium* also different from that of *megaspilus*, almost identical with that of *hottentotus*, with the lower apical margin of the neck region more dilated than in the latter; aedeagus with the same ventral aedeagal process, but the anterior process of the lateral rami on each side slightly more bluntly rounded and the apical slender part of aedeagus shorter; lateral struts also slender and rod-like; basal strut slightly narrower and less broad towards the apex.

Types in the Transvaal Museum and some paratypes in the South African Museum.

Length of body: about 10–12 mm.

Length of wing: about 10–12 mm.

Locality.—Namaqualand: Van Rhynsdorp (van Son, July–Aug. 1927) (Holotype); Van Rhynsdorp (Brauns, Aug. 1927) (Allotype); Klipfontein (Lightfoot, Aug. 1890); Garies (Mus. Staff, June 1930).

This species is so closely related to *hottentotus* that it may almost be considered as a variety or race of this species. The characters given in the key, and especially the size and the paler bristles and more pale yellowish pubescence, however, separate it from *hottentotus*.

7 ♀♀ *B. braunsi* Bezz. (as labelled by Brauns from material sent to Bezzi).

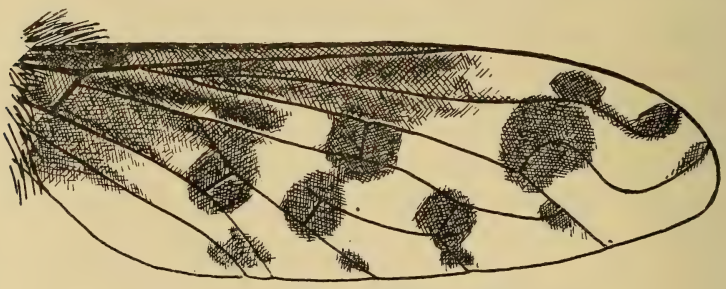
As in the case of some other species of Bombyliidae of Bezzi, this specific name has a shadowy existence in keys and short notes, without any detailed description existing. In the Ann. S. Afr. Mus., vol. xviii, it is mentioned in the key on p. 23 and its description is forecasted on p. 27 (loc. cit.). Again in 1922, in Broteria, vol. xx, fasc. II (Ser. Zool.), p. 72, it remains still undescribed, but apparently some specimens have now been named as such, while in "The Bomby-

liidae of the Ethiopian Region" it once more enters the keys as an already described species on p. 57. I can find no reference in literature that the material in the Hungarian Museum was ever described, as forecasted. The keys are of no use in running down suspected specimens of this species, so I am forced to rely on specimens labelled as such by Brauns and Bezzi. Some of these specimens mentioned in Broteria in Brauns' private collection, now housed in the Transvaal Museum, are now before me in the form of two distinctly and obviously different species, both ♀♀, and both from "Willowmore (collected in Aug. 1921 and Sept. 1919)." The labelled ♀, collected in August 1921, is apparently the undescribed species *braunsi*, but the other ♀ agrees in every respect with the ♀ type of *punctifer* Bezz. in the South African Museum. This latter ♀ may be made to run down to *braunsi* in Bezzi's keys, but the former ♀, as well as 5 other specimens, all have a distinct and large spot at apex of anal and axillary cells, and the hind border of the wing has distinct infuscations on the veins. In view of this, there remains no other way but to describe these specimens as *braunsi* unless the type exists somewhere and may prove to be yet another species, such as a race of *capensis* or some other undescribed form.

This species is so near *megaspilus* that a comparative description will suffice to make its identity clear. Compared with the typical form of this species the general pubescence on the body is of the same colour and sheen, the brownish golden stripes on the thorax above are not present or evident, the bristles on occiput and antero-lateral parts of thorax darker, more blackish, a few along the sides in front of wings and intermixed with the other pale reddish brown like those on scutellum, the bristles on abdomen above distinctly black, the posterior ones long and also tipped whitish, but the white tips shorter, the white hair on the abdomen much more extensive and denser, and the black hair above and below and along sides towards apex much less conspicuous, less developed and shorter, the hair on venter comparatively darker, less yellowish or pale brownish, the bristles on middle and hind coxae predominantly black; wings as shown in * text-fig. 61, with the middle spot in apical part of marginal cell comparatively larger, the spot at apex of anal and axillary cells slightly smaller, but constantly present and not fused or confluent with large rounded spot at base of fourth posterior cell, this spot

* The outline and shape of the wing are not correctly shown in this figure; the outline and shape in reality being more like that of *megaspilus*. (*See* Bezzi's text-fig. 3.)—(Author.)

moreover is always confluent with basal infuscation of first basal cell (usually separated in *megaspilus*), with the spot on discal cross vein and at base of third posterior cell confluent or contiguous, not separated, with the infuscation along veins separating posterior cells 2 and 3 and 3 and 4 variable, but less distinct and smaller. *Head* with the interocular space 3, or a little more, times as broad as tubercle, with joint 3 of the antennae straighter and comparatively shorter, with the apical fourth, or often a little more, distinctly more slender (joint being more rapidly narrowed to this slender part); proboscis much shorter, about 4 mm. long; genae with fewer black bristles.



TEXT-FIG. 61.—Wing of *Bombylius braunsi* Bezz.

Wings with the vein between the discoidal and third posterior cells sharply bent at right angles at its base and there usually provided with a distinct stump or appendix. *Legs* with 8–12 spines below from near base to apex on hind femora, those near base also a little longer.

Labelled specimen in the Transvaal Museum.

Length of body: about 8½–11 mm.

Length of wing: about 8–11 mm.

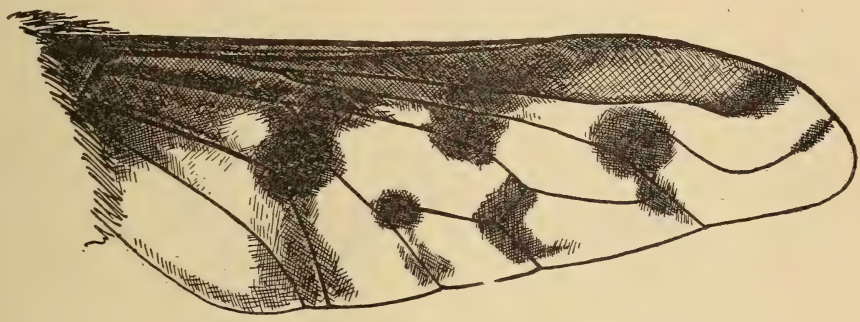
Locality.—Southern Karoo: Willowmore (Brauns, Aug. 1921, 1925, and Sept. 1921); Robertson (Nothling, Oct. 1930); Worcester (Turner 3–4/10/1928) (British Museum).

This species may prove to be only a variety of *megaspilus*, and it is necessary to examine the hypopygium of a ♂ in order to settle this. The constancy of the appendix at base of the vein separating the discoidal and third posterior cells, as well as other characters, however, definitely separate it from *megaspilus*.

3 ♂♂ *B. fenestralis* n. sp.

This species is also very near *megaspilus* as far as external characters are concerned. Compared with this latter species, it is found to be

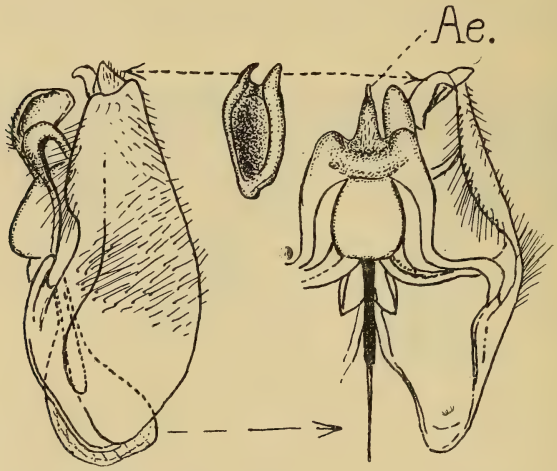
comparatively larger; the colour and general effects of the pubescence on the body are more or less the same, the sheen of the hairs on the thorax above is more silvery and sericeous white in certain lights, with the brownish golden stripes on the thorax above scarcely visible or only feebly developed, with the hair on each side in front of wing bases not brownish, but whitish, with that on pleural and pectoral regions more whitish, the white hair on abdomen more conspicuous and more extensive and the black less extensive, the hair on the whole comparatively less dense on the abdomen and mystax with more white hair and the black bristles and hairs on frons stouter,



Text-fig. 62.—Wing of *Bombylius fenestralis* n. sp.

the bristles on thorax anteriorly, antero-laterally, and behind wing bases and on scutellum pale reddish brown or yellowish red, but paler and not dark brownish as in *megaspilus*; bristles laterally on sides of thorax, or along upper parts of pleurae also black, the bristles on abdomen above across hind margins of segments 1–3 pale yellowish or brownish and those from segment 4 to apex black, but tipped with whitish or yellowish white, all much longer than the hair and comparatively longer than in *megaspilus*, with a central tuft of white hairs at apex of abdomen; wings as shown in text-fig. 62, with the anterior dark brownish black infuscation extending to apex of marginal cell, only the medial part of this apical part being slightly less infuscated, more translucent, but not hyaline, without any middle spot or infuscation, only the end of second longitudinal vein being infuscated, with the infuscation at apices of anal and axillary cells smaller, less spot-like and more diffuse, and not contiguous or scarcely confluent with large spot at base of fourth posterior cell, with a larger hyaline area in anal cell and only a small hyaline spot near apex of second basal cell, with the large spot at base of fourth posterior cell confluent with basal infuscated part of anterior part of

wing, with the spots on apical cross vein of discoidal cell and base of third posterior cell comparatively smaller and either more feebly or faintly continued along veins separating posterior cells, but not so distinctly as in *megaspilus*, with the discoidal cell very broad and anal cell more broadly open on hind border; legs with the femora comparatively less darkened in basal half. *Head* with the interocular space in ♂♂ much broader than in *megaspilus*, very nearly 2 times as broad and thus much broader than width of ocellar tubercle;



Text-fig. 63.—Side view, half of ventral view and dorsal view of beaked apical joint of hypopygium of ♂ *Bombylius fenestralis* n. sp.

antennae with joint 1 relatively shorter and thicker, with the slender apical part of joint 3 longer, slightly less slender, with the slender style also long and straight; proboscis a little longer, about 5–6 mm. long. *Legs* comparatively much longer; femora with 3–5 black spines on anterior lateral aspect in apical half of middle ones and 8–10 comparatively stouter and shorter spines below on hind ones from near base to apex; claws comparatively shorter and less stout and more or less curved from near base to apex, not straight for more than two-thirds of its length as in *megaspilus*; pulvilli shorter, only a little longer than half the length of claws. *Hypopygium* (text-fig. 63) with the outer lower margin of neck region of basal parts dilated, with the inner apical processes flattened and somewhat concave towards beaked apical joints; beaked apical joint more or less sunk in apical part of basal part, foveately hollowed out above, the apex acute and slender, slightly bent downwards, the fovea elongate and

bounded by carinate or ridge-like edges which, along the outer side, are broad and produced apically into a blunt process, not bent downwards (the joint is thus bifid apically); aedeagus with the apical part short, about reaching apex of inner apical process, with its base prominently projecting downwards and provided with a central forwardly and upwardly directed ventral aedeagal process, latterly compressed and ploughshare-like, with the basal dorsal aedeagal struts visibly projecting basally; lateral struts narrow, almost rod-shaped, but broadened basally; basal strut almost bat-shaped.

Type in the South African Museum.

Length of body: about 10–12 mm.

Length of wing: about 11–12½ mm.

Locality.—Nieuwveld Karoo: Beaufort West. Distr. (Mus. Staff, Oct. 1935). Namaqualand: Kamieskroon (Mus. Staff, Sept. 1930) (Type).

This species, owing to its distinct structural differences in the more widely separated eyes, broader thorax, different claws and differently shaped aedeagus and beaked apical joints of the hypopygium, cannot even be considered as a variety of *megaspilus*; it is an entirely different species.

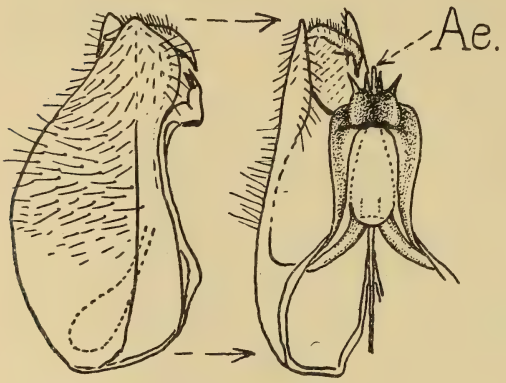
B. capensis Linn.

(P. 1009, Syst. Natur. Ed., xii. II. 3, 1767; Wiedemann, p. 351, Aussereurop. Zweifl. Ins., i., 1828; Bezzi, p. 26, Ann. S. Afr. Mus., vol. xviii, 1921, Pl. I, fig. 2.)

Descriptions of *capensis* Linn. are so unsatisfactory that determinations from them are impossible, and I have to take Bezzi's labelled specimen as a representative of this species. The identity of this species thus remains very doubtful, especially when it is evident that the descriptions of Linnæus and Wiedemann are also applicable to several other species with spotted wings such as *servillei* Macq., *pentaspilus* Bezz., *braunsi* Bezz. (in lit.), *punctifer* Bezz., etc. The chief characteristics of *capensis*, as defined here, are:—

Body entirely black; legs with the tibiae and more than basal parts of tarsi yellowish, with the extreme apices of femora also yellowish, with the 6–9 slender, bristle-like spines on hind femora below black or blackish, the spicules on tibiae predominantly or entirely yellowish, yellowish brown or pale brownish; pubescence long, dense and shaggy as in other species in this group, predominantly whitish or silvery whitish, that on disc of thorax more or less gleaming

sericeous yellowish or brownish golden in certain lights, more so on sides, but sometimes scarcely discernible, with the tuft of hairs on post-alar calli on each side almost always gleaming golden or brownish golden in certain lights, with the bristly hairs and bristles on head, thorax and abdomen predominantly black, the dense tuft-like hairs on sides of abdomen towards apex and also on each side of a silvery white apical tuft black, with, however, much dark brownish or blackish brown ones on sides of venter apically, with some or numerous intermixed bristles on occiput, on humeral part on each side, the entire metapleural tuft, some or numerous bristles on coxae and many on each side of venter or sides of abdomen yellowish, with pale intermixed hairs and bristles on venter; wings as figured by Bezzi (loc. cit., Pl. I, fig. 2) but usually without spots at ends of posterior veins, but always with a diffuse spot at apex of anal and axillary cells, with the anterior infuscation and spots yellowish brown to coffee brownish and with the first longitudinal vein and bases of the others usually pale brownish or pale reddish brown, with the spots on apical cross veins of first and second basal cells, at base of third posterior cell and at base of vein separating submarginal cells usually large, rounded and conspicuous, the one on apical cross vein of discoidal cell also large but those at end of second longitudinal vein and at about middle of apical part of marginal cell smaller, that at end of somewhat acute first posterior cell minute or small, and that at end of vein separating submarginal cells very faint. *Hypopygium* of ♂ (text-fig. 64) resembling that of *hottentotus*, *ammophilus*, and *zoutpansbergianus*, where the rami on each side are continued apically and where a central, raised or arch-like ventral aedeagal process is present; inner apical part of basal parts slightly projecting; aedeagal process shaped as shown in figure and with 4 spines on it.



Text-fig. 64.—Side view and half of ventral view of hypopygium of ♂ *Bombylius capensis* Linn.

Length of body: about 6–12 mm.

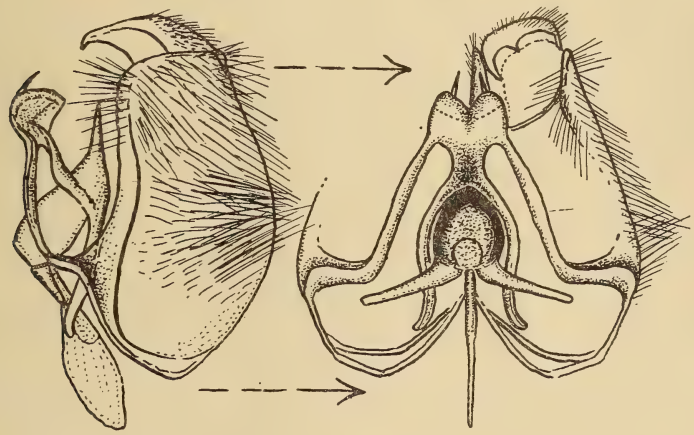
Length of wing: about 7–13 mm.

Locality.—Namaqualand, S. Karoo and Little Karoo. (In the Transvaal and South African Museums.)

There is no doubt that the species is slightly variable, the large specimens from Namaqualand having larger spots on the wings and also with indications of distinct spots at ends of some of the posterior veins. The spicules on the tibiae in some specimens are also predominantly or entirely dark or black.

2 ♂♂ 11 ♀♀ *B. nieuwveldensis* n. sp.

It is with much hesitation that I refer these insects to a separate species. Externally there is very little to distinguish them from



Text-fig. 65.—Side view and part of ventral view of hypopygium of ♂ of *Bombylius nieuwveldensis* n. sp.

capensis, but as the hypopygium of the ♂ is structurally slightly different, showing specific differences, they are referred to a separate species.

From *capensis* these specimens differ in having the pubescence on body above markedly gleaming silvery whitish, without any yellowish sericeous gleaming pubescence on disc of thorax or in a tuft on post-alar calli, with all the bristly hairs and bristles on head, thorax, scutellum and abdomen above black, without any or with very much fewer yellowish bristles on occiput, humeral region and coxae, with those in metapleural tuft also yellowish, with the hair on sides of abdomen and towards apex of venter more intensely black, having

no dark coffee brownish sheen, but also with intermixed pale bristles, with the dark parts and spots on wings much darker and sooty black, without any spot at apex of anal cell and without even indications of spots at ends of posterior veins, with all the veins much darker and very dark blackish brown or black and with the first posterior cell tending to be less markedly acute apically, with the tibiae slightly darker and more brownish, not pale yellowish and with the spicules on the tibiae entirely black, the spicules on hind tibiae also appearing denser. *Hypopygium* of ♂ (text-fig. 65) differs from that of *capensis* (cf. text-fig. 64) in having the inner apical parts of basal parts not distinctly produced and not projecting beyond beaked apical parts; ventral aedeagal process also slightly shaped differently and having only 1 spine on each side and not 4 as in *capensis*.

Types in the South African Museum.

Length of body: about 6–10 mm.

Length of wing: about 6–10 mm.

Locality.—Nieuwveld Karoo: Beaufort West. Distr.; Leeukloof (Mus. Staff, Oct. 1935).

B. punctifer Bezz.

(P. 28, Ann. S. Afr. Mus., vol. xviii, 1921, and p. 59, The Bombyliidae of the Ethiopian Region, fig. 4.)

This species can be easily recognised by the characters given in the key, namely:—

The wings are not extensively mottled, with the dark brownish infuscation in anterior costal and basal parts distinctly less marked off from hyaline part, without any infuscations at ends of second longitudinal vein and vein separating submarginal cells and with the apical part of marginal cell more hyaline than in other species in this category, there being also no spot or infuscation at apices of anal and axillary cells; pubescence, excluding black or yellowish bristles on thorax and scutellum, entirely silvery whitish, even discally on thorax, with that on abdomen above also entirely silvery white, the black hair on extreme sides and sides of venter being less extensively developed and scarcely visible from above, with transverse rows of whitish or pale-tipped black bristles across segments 2 to apex. The ♂ of this species has not yet been taken.

Locality.—Southern and South-Eastern Karoo and Namaqualand. In the Transvaal, British and South African Museums.

B. punctatellus Bezz.

(P. 27, Ann. S. Afr. Mus., vol. xviii, 1921.)

This small species is represented by the unique ♂-type specimen in the South African Museum. It is easily distinguished from all other species, with more or less mottled wings, by the characters given in the key, but chiefly by the infuscation of the wings, which superficially resembles that found in *servillei* Macq. and *pentaspilus* Bezz. The wings have the same anterior dark blackish brown infuscation, extending up to end of marginal cell, 3 similar large, rounded spots along the posterior border of the infuscation and 3 much smaller spots in posterior part; the more hyaline part of wings is, however, not entirely hyaline but slightly cinereous greyish and the anal cell is very acute apically, provided with a very short stalk and thus not opening widely on hind border. The abdomen, in this insect, has extensive chocolate brown hair laterally, especially towards apex, with the pale-tipped, transverse bristles, as well as those on sides of thorax and on scutellum, brownish, becoming darker towards apex of abdomen. The third antennal joints are broadest at about the middle, scarcely more narrowed apically than basally and the face is poorly developed; the head itself is somewhat dorso-ventrally compressed. The spines on legs are comparatively slender and poorly developed for this group, there being only about 4 spines on hind femora below.

Locality.—No locality label, but probably Karoo or N.W. Cape Province.

B. punctatelloides n. sp.

(Syn. = *punctatellus* Bezz. in part.)

There is no doubt that this ♂-specimen, referred to by Bezzi on p. 28, Ann. S. Afr. Mus., vol. xviii, 1921, as belonging to *punctatellus*, is specifically distinct from *punctatellus*. From the type of the latter species it differs in the following points:—

Pubescence on body more predominantly silvery whitish, there being no dark intermixed hairs on disc of thorax and that on abdomen with distinctly less chocolate brown ones laterally and apically, being more extensively whitish above, that on sides of thorax in front of wings, in mesopleural tuft and even in upper parts of metapleural tuft more whitish, with the slender bristles on head, thorax, scutellum and transversely on abdomen much darker, deeper chocolate

brown; wings (figured by Bezzi as that of *punctatellus* on Pl. I, fig. 4, loc. cit.) differing in having the spots at apex of first posterior cell, on apical cross vein of discoidal cell and at base of third posterior cell very large and rounded, as large as the 3 anterior spots, also with a much more distinct infuscation at apex of anal cell and even with faint indications near ends of veins separating second, third, and fourth posterior cells, with the second longitudinal vein not undulating and only very slightly sinuous above last spot in the first row, with the discal cross vein only very little beyond middle of discoidal cell and with the anal cell normally opening on the hind border. *Head* with the interocular space slightly broader, quite 2 times as broad as ocellar tubercle, with the third antennal joints distinctly longer, more slender and rod-like, tapering gradually from a slightly broader base. *Legs* with about 7 (not 4) longer spines from near base to apex on hind femora below, with the basal ones remarkably long and slender, almost bristle-like, with the claws distinctly shorter and less slender, more gradually curved downwards from about middle to apex and not rapidly bent downwards near apex, with the pulvilli distinctly shorter, only extending a very little beyond the middle of claws. The apical part of the abdomen was unfortunately damaged, so the hypopygium cannot be described for this specimen.

Type in the South African Museum.

Length of body: about 5 mm.

Length of wing: about 6 mm.

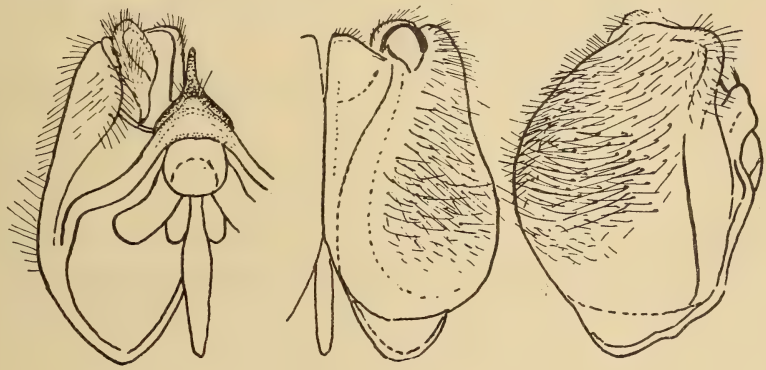
Locality.—No locality label, but probably also from the Cape Province.

B. obesus Bezz.

(P. 29, Ann. S. Afr. Mus., vol. xviii, 1921.)

From several specimens of both sexes before me and some named specimens in the Transvaal Museum, I am able to identify this species correctly. The ♀-specimen from "Isipingo" to which Bezzi refers is, however, not from that locality in Natal but from "Upington" in the N.W. Cape Province. The writing on the label is quite legible. Moreover it is not *obesus*, but an entirely different species. It is a variety of a new species, *zoutpansbergianus*, described by me in this paper. *B. obesus* is a fairly bulky species, superficially resembling *hypoleucus*, and is characterised by having predominantly sericeous whitish, gleaming pubescence above and also across pleural parts, with numerous intermixed black bristles on frons, antennae below,

sides of face, on genae, on sides of thorax in front of wing-bases and tufts of black hair on sides of abdomen and at apex, where they are very dense and conspicuous, with the bristles on occiput, on thorax in front, on sides of thorax and intermixed on mesopleuron, on posterior calli, on scutellum, the long ones transversely across abdomen above, some on genae and front part of face, those on coxae and some on venter yellowish, ochreous yellow to reddish yellow, those in ♀♀ usually more reddish yellow, with the pubescence on abdomen above more conspicuously gleaming sericeous, with a few darkish bristles on



a. *b.* *c.*

Text-fig. 66.—(*a*) Half of ventral view of hypopygium of ♂ *Bombylius obesus* Bezz. (*b*) Half of dorsal view of hypopygium of ♂ *Bombylius obesus* Bezz. (*c*) Side view of hypopygium of ♂ *Bombylius obesus* Bezz.

coxae and some on venter; wings greyish hyaline, with the base, costal cell, greater part of marginal cell, base of first submarginal cell, basal half of first basal cell, upper part of second basal cell, extreme bases of anal and axillary cells and the alula brownish to dark brownish, this infuscation not well marked off from more hyaline part of wing, with distinct dark spots on apical cross vein of second basal cell, on apical cross vein of first basal cell, at base of vein between submarginal cells, at apex of first posterior cell, on apical cross vein of discoidal cell and at base of third posterior cell, with the basal comb black, the veins very dark blackish brown or almost black, the discal cross vein much beyond middle of discoidal cell. *Head* with the interocular space in ♂♂ broad, quite 2 times as broad as tubercle, in ♀♀ also broad and about 4 times as broad as tubercle. *Legs* with the femora black in ♂♂ and in ♀♀ also black or much darkened; claws slender and long in ♂♂, gradually curved, with the

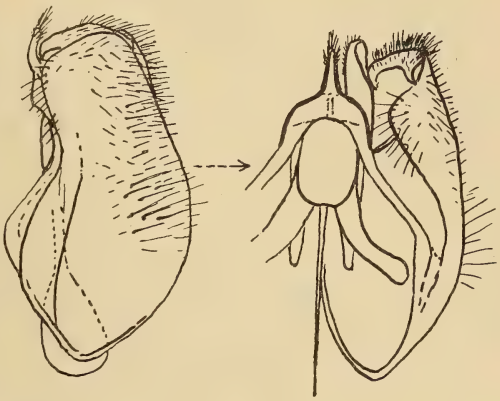
pulvilli flattened and well developed in ♂♂, reaching middle of claws, confined to base in ♀♀. *Hypopygium* of ♂ (text-fig. 66, *a*, *b*, and *c*) with the basal parts compact, broad, and short, with much hair, dorsally more or less convexly raised along line of junction (text-fig. 66, *b*), the neck region markedly short and broad, with the inner dorsal margin in neck region very broad, concave on side of beaked apical joints, rounded apically, the lower apical part of neck region projecting lobe-like; beaked apical joints sunk in basal part, with a large, deep, rounded foveate depression on upper inner aspect, their apices not very acute; aedeagus with the apical part slender, the base prominent and medially conically produced forwards; lateral struts comparatively short.

Locality.—Namaqualand, Central and Southern Karoo. (In the Transvaal and South African Museums.)

1 ♂ *B. mollihirtus* n. sp.

Body black; hind margins of ventral segments and genital segment pale yellowish white; pubescence on occiput, thorax above, scutellum, abdomen above and upper parts of pleural regions soft and furry, very pale greyish white, with a dull whitish sericeous or silvery sheen in certain lights, that on disc of thorax with a feeble yellowish sheen, that on abdomen above, on sides and towards apex more silvery white in certain lights, that in mystax, on genae, head below, near pectoral regions, in metapleural tuft, on venter and centrally above at apex of abdomen white, the bristly hairs on frons, sides of face, below joint 1 of antennae, a few on genae and its lower parts, the bristles along upper parts of mesopleuron, basal comb of wings, some hairs intermixed on sides of abdomen and the denser and longer tuft-like hair towards apex and on sides below black, those towards end of abdomen with a dark blackish brown sheen in certain lights, the hairs on ocellar tubercle, antennae above and the bristly hairs or bristles on occiput very pale yellowish, the bristles on genae, anterior part of thorax and laterally behind wings, on scutellum, the transverse rows on hind margins of abdomen, on posterior part of mesopleuron, those below on metapleural tuft and the spines on legs deeper yellowish, the bristles towards apex of abdomen black or dark brownish black with paler, more yellowish tips and those on sides of venter whitish, the bristly hairs on coxae yellowish and intermixed with the others; wings faintly infuscated on anterior half up to end of costal cell, discal cross vein and up to apex of second basal cell with pale

greyish brownish, with the costal cell shining through more subopaquely whitish, with the rest of the wing translucent and with a feeble milky white tint in certain lights, with the veins dark brownish, paler brownish basally, with faint, diffuse and indistinct infuscations on apical cross vein of second basal cell, discal cross vein, base of vein between discoidal and third posterior cells, apical cross vein of discoidal cell, base of vein between submarginal cells and an evanescent one at apex of first posterior cell, with the parts of the veins on these sites distinctly darkened, more blackish brown, with the fringes of the squamae and alulae whitish; halteres brownish; legs yellowish brown, with the femora blackish to beyond the middle and the apical parts of tarsi more brownish, the apical two-thirds of claws black. *Head* with the eyes broadly separated above, very nearly 2 times as broad as ocellar tubercle; antennae with joint 3 only a little longer than 1 and 2 combined, distinctly broadened in basal half, broadest nearer base, thence fairly rapidly narrowed to straight and slender apical half, with the style slender and feebly curved, with the upper apical part of joint 2, as in many other species in this section, more or less prominent, almost projecting; genae with a few bristles or bristly hairs along its lower part; proboscis about 4 mm. long. *Legs* with a longish spine beyond middle along posterior face and a shorter one opposite on anterior face of front femora; middle femora with 2 or 3 spines anteriorly beyond middle and a single long one posteriorly; hind femora with 5–6 spines below from near base to apex; claws comparatively short and slender, curved from near base, with the pulvilli scarcely reaching the middle of claws. *Hypopygium* (text-fig. 67) with the lower apical part of neck region of basal parts subangularly dilated; beaked apical joint flattened, depressed above, but not foveately hollowed out, the apex acute, bent downwards (more slender than is shown in figure); aedeagus with the slender apical part hidden and above ventral



Text-fig. 67.—Side view and half of ventral view of hypopygium of ♂ *Bombylius mollihirtus* n. sp.

aedeagal process, which is in the form of a medial forwardly projecting pointed process, armed with setae apically and almost reaching level of inner apical processes, with the base flattened and broad, continuous on each side with the rami, with the dorsal basally directed aedeagal struts just visibly projecting; lateral struts feeble; basal strut small, bat-shaped.

Type in the Transvaal Museum.

Length of body: about 9½ mm.

Length of wing: about 8½ mm.

Locality.—Karoo: Willowmore (Brauns, Oct. 1911).

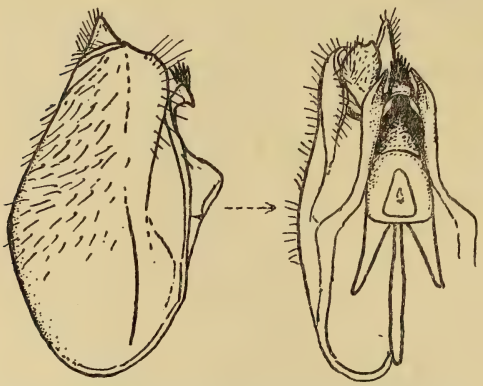
This species resembles a small specimen of *obesus*, from which it is separated by the characters given in the key. From *zoutpansbergianus* n. sp. it differs chiefly in the more broadly separated eyes, less spotted wings, and other characters given in the key.

3 ♂♂ 9 ♀♀ *B. zoutpansbergianus* n. sp.

Body black, with the hind margins of ventral segments pallid or pale ochreous yellow to yellowish white, more extensive in ♂♂, the entire venter in the holotype being yellowish; pubescence on occiput, thorax above, scutellum and abdomen above whitish, with a silvery sheen when viewed from the side or in front, from above with a greyish tint, more distinctly white in ♂♂, and in ♀♀ with a feeble indication of yellowish stripes on disc of thorax, the sides of thorax in front of wings also with a feeble yellowish tint, that above on antennae, in mystax, on face, sides of genae, head below, pleural regions, metapleural tuft, sides of venter in basal half snow white, that on sides of abdomen, sides towards apex and in apical tuft with black hair, denser, longer and more distinct towards apex and in apical tuft and in certain lights with a distinct blackish brown tint, with the black hair in basal half of abdomen more extensive in the ♂♂, the bristles and bristly hairs on ocellar tubercle, below joint 1 of antennae, sides of face, on genae pale yellowish white, yellowish to pale yellowish brown, with the fine bristles on sides of frons often much darker, more brownish black, the bristles on occiput, thorax above, scutellum, mesopleuron, in metapleural tuft below, on coxae, the longer ones on basal comb of wings, on abdomen above and below and the spines on legs deeper yellowish to reddish yellow or pale brownish yellow, slightly paler, more whitish in the ♂ holotype, with the bristles towards apex of abdomen and venter distinctly more whitish in ♂♂, with the tips of bristles towards apex distinctly more whitish, with a

few bristles on genae often distinctly whitish; wings with the anterior half, even up to end of marginal cell, basal half of first submarginal cell, basal three-quarters of first basal cell, second basal cell (excepting clear spot towards apex) and base of anal cell tinged pale yellowish brown or pale brownish, with the rest of wing translucent, subhyaline, the apical part of marginal cell being slightly less hyaline, with a large rounded spot on basal cross vein of fourth posterior cell, on discal cross vein and a very distinct one at base of vein separating submarginal cells, with a slightly smaller spot on apical cross vein of discoidal cell and at base of third posterior cell, with a diffuse spot at end of second longitudinal vein and at end of vein separating submarginal cells, with a variable infuscation at apices of anal and axillary cells, and smaller, indistinct, and often absent, spots at apex of first posterior cell and at ends of veins separating posterior cells 2 and 3 and 3 and 4, with the veins dark brownish to brownish black, the basal parts being paler, more reddish brown, with the bristles on basal comb predominantly black, with the fringes of squamae and alulae white; halteres pale yellowish brown, with dark brownish black knobs; legs with the femora black to much beyond middle, covered with whitish scales; claws in the ♀♀ almost entirely black, in ♂♂ with blackish apices. *Head* with the eyes in ♂♂ separated above by about 1½ times width of ocellar tubercle, a little more than 3, nearly 4 in some ♀♀, times width of tubercle in ♀♀ and about 3 times as broad as in ♂♂; antennae with joint 3, often with white scales, comparatively longer in ♂♂, slender, almost rod-like in some ♂♂, scarcely broadened basally, in ♀♀ more distinctly broadened in basal half and in some ♀♀ being broadest a little before middle, gradually narrowed apically, with the apical slender part more distinct in some ♂♂, with the dorsal apical part of joint 2 bluntly projecting, almost spine-like in some specimens; genae with a few distinct but slender bristles on lower aspect; proboscis more or less straight, only the apex slightly bent upwards, about 4 mm. long in ♂♂ and 4–5 mm. in ♀♀. *Wings* with a tendency for vein between discoidal and third posterior cells to be slightly or sharply bent at right angles at base in some specimens and there to be provided with an indication of a short stump (with this is also correlated a similar tendency for vein between the submarginal cells to be bent at right angles at its base), with the discal cross vein a little beyond middle of discoidal cell. *Legs* with about 3–4 spines on anterior face from middle to apex and 1 spine on postero-lateral aspect of middle femora; hind femora with about 6–8 spines below from near base to apex, stouter

and longer in ♀♀, the ones nearer base being longer and more slender; claws much longer and comparatively more slender in ♂♂, curved from about middle; pulvilli long in ♂♂, reaching and extending beyond middle of claws, feeble and scarcely visible in ♀♀. *Hypopygium* of ♂ (text-fig. 68) with the basal parts compact, but not to such an extent as in *obesus*, with the lower apical margin of neck region dilated, the inner apical processes projecting distinctly, the hairs on dorsum sparse and short; beaked apical joints slightly elongate, flattened and depressed above; aedeagus with the slender apical part not reaching the level of inner apical processes and not visible from below, hidden by the basal part of aedeagus, which is developed as a ventral aedeagal process, projecting downwards and slightly apically in form of a central inverted U-shaped arch, provided apically with flattened spines and connected laterally with the rami, which are also produced on each side anteriorly into a pointed process, the outer side of which is higher and slightly carinate; lateral struts comparatively short and rod-like, projecting backwards; basal strut not projecting beyond bases of basal parts.



Text-fig. 68.—Side view and half of ventral view of hypopygium of ♂ *Bombylius zoutpansbergianus* n. sp.

Types in the Transvaal Museum and some paratypes in the South African Museum.

Length of body: about 6–11 mm.

Length of wing: about 6–11 mm.

Locality.—N.E. Transvaal: Zoutpansberg Distr. (Breyer, 7 and 8/1916).

2 ♀♀ *B. zoutpansbergianus* var. *occidentalis* n.

(Syn = *obesus* Bezz. in part.)

Two ♀♀, in the South African Museum from "Keimoes, Gordonia (K. Barnard, July 1925)" and "Upington" (this latter labelled by Bezzi as *obesus* and mentioned as coming from "Isipingo" on p. 29,

Ann. S. Afr. Mus., vol. xviii), agree in every respect with *zoutpansbergianus* except for the following details, mentioned also in the key: The bristles and bristly hairs on sides of frons, on antennae below, sides of face and mystax, all the longer bristles on genae, sides of thorax and along upper parts of mesopleuron black; basal comb predominantly black and with few yellowish bristles; thorax above with 3 distinct pale brownish golden stripes; bristles on thorax slightly more reddish brown and the bristles on abdomen also distinctly darker, more reddish brown; evanescent spot-like infuscations on veins separating posterior cells 2 and 3 and 3 and 4 much smaller or wanting, and the body is slightly longer, about 12 mm.

This form can scarcely be elevated to specific rank, and I refer it to a new Western variety *occidentalis* occurring in the extreme N.W. Cape Province and Southern Kalahari. The wing-pattern of *zoutpansbergianus* resembles that of *punctifer* Bezz., but the anterior infuscation is slightly less dark, the ends of second longitudinal vein and vein between submarginal cells with a distinct spot, apices of anal and axillary cells with a faint spot and ends of veins separating posterior cells 2 and 3 and 3 and 4 often with faint spots.

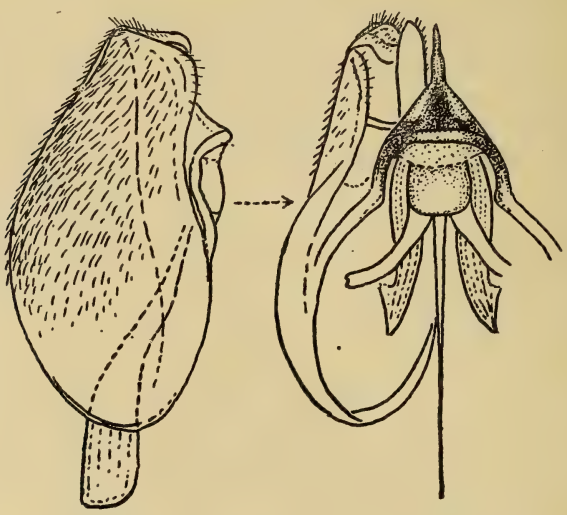
B. spinibarbus Bezz.

(P. 30, Ann. S. Afr. Mus., vol. xviii, 1921.)

This striking species, described by Bezzi from 2 ♂♂ in the South African Museum, is represented by both ♂♂ and the as yet undescribed ♀♀ in the collections before me. The species may be easily recognised by the following characters:—

Body black, with the greater part of scutellum, the hind margins of the tergites, broader on sides in both sexes, but apparently broader on sides of abdomen in ♂♂ and the hind margins of sternites red or reddish, with antennal joint 1 sometimes also tending to be partly reddened and even with the sutural parts of pleurae sometimes reddish; legs entirely yellowish in both sexes, only the apical parts of tarsi becoming darker and the apical parts of claws blackish; pubescence dense, long and shaggy on abdomen, that on thorax above very dense and shorter than on abdomen, that on head dense and bushy, the stouter and conspicuous bristles well developed on occiput, antennae below, on face in front and brush-like on lower parts of genae, the bristly elements on rest of body and especially on abdomen also prominent, the entire pubescence on body above and below golden yellowish to deep golden and gleaming golden,

that on abdomen in certain lights appearing paler and gleaming more sericeous yellowish, the dense scaling along anterior and hind margins of eyes and the pubescence on head below more dull whitish or creamy, the pubescence on body below scarcely paler yellowish than on body above, the bristly elements on coxae and pubescence on sides of venter and sides of abdomen above, especially in ♀♀, even more ochreous yellowish; wings greyish hyaline posteriorly and apically, but the costal cell and basal half from end of costal cell



TEXT-FIG. 69.—Side view and half of ventral view of hypopygium of ♂ *Bombylius spinibarbus* Bezz.

across to middle region of anal cell tinged yellowish to ochreous yellowish, being more subopaque towards base and in costal cell, with the basal comb yellowish to ochreous yellowish, the veins yellowish, becoming more brownish in apical part of wings, with distinct darker and more brownish spot-like indications at base of third longitudinal vein, on apical cross veins of basal cells, and at base of vein between submarginal cells, with the discal cross vein a little beyond middle of discoidal cell, with the first posterior cell tending to be somewhat acute apically and sometimes with a tendency for vein between discoidal and third posterior cells to be sharply bent at its base and there to be provided with an insignificant stump; halteres yellowish and with almost whitish knobs. *Head* with the eyes in ♂♂ rather broadly separated above by a space nearly or quite 2 times as broad as ocellar tubercle, with the interocular space

on vertex in ♀♀ a little more than 3 times as broad as tubercle; antennae with joint 1 thickened, incrassate or barrel-shaped, quite 2½ times as long as 2, with 2 longer than broad, its upper apical part slightly projecting, with 3 club-like, thickened and knob-like at base, then slender and rod-like to apex, the apex itself slightly broadened and ending in a slender style; proboscis about 4–6½ mm. long. *Legs* without any bristly hairs on femora below; front femora with 2 or 3 spines in front in some specimens; middle femora with about 3–6 spines in front and about 2 behind; hind ones with about 8–10 longish spines from near base to apex below and a few on outer side apically, those below sometimes irregularly arranged; tibiae with the spicules, especially on front and middle ones, rather numerous and not widely separated; claws gradually curved and with the pulvilli in ♂♂ extending to about middle of claws, in ♀♀ slightly shorter; front tarsal joints in ♀♀ hairy but not much thickened. *Hypopygium* of ♂ (text-fig. 69) with the neck region of basal parts slightly arcuately broadened along its lower margin; beaked apical joints ovate, their apices curved downwards and slightly outwards, their upper surfaces slightly depressed; aedeagus with the apical slender part slightly curved upwards, the basal part broad and bell-shaped, its basal rim continuous on each side with ramus from each basal part; lateral struts slender; basal strut somewhat bat-shaped and elongate.

In the Transvaal and South African Museums.

Length of body: about 8½–13½ mm.

Length of wing: about 8½–13 mm.

Locality.—South Western Cape Province.

B. angulosus Bezz.

(P. 31, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species is so closely related to *spinibarbus* that a full description is unnecessary. Compared with *spinibarbus* it differs as follows:—

Pubescence on the whole distinctly paler yellowish, gleaming much paler and more pale velvety sericeous yellowish, appearing even more creamy yellowish in ♂♂, that on abdomen in ♂♂ especially becoming distinctly paler yellowish towards apex, the general effects above in both sexes more resplendent and gleaming pale sericeous yellowish in certain lights, that on body below distinctly more dull whitish, more chalky whitish and distinctly contrasting with yellowish pubescence above, that in metapleural tuft and sides of venter more distinctly whitish, the bristly elements on coxae are, however, also

deep yellowish and contrasting with white pubescence on pleurae and head below, with distinct tufts of blackish brown or chocolate brown hair along extreme sides of abdomen (seen from ventral view) in ♀♀, these however sometimes very sparse or even wanting in some ♀♀; wings relatively longer, on the whole more extensively tinged yellowish brownish or reddish brownish, becoming fainter and more hyaline apically and posteriorly and darker basally, with the same spot-like, but darker and more distinct, infuscations and in addition also spot-like infuscations on apical cross vein of discoidal cell, at base of vein between discoidal and third posterior cells and sometimes even at apex of first posterior cell and with the vein between discoidal and third posterior cells more constantly bent at right angles at its base and provided with a more constant and longer stump; head with antennal joint 1 slightly longer and quite 3, or even a little more, times as long as 2, with 2 less elongate and more subglobular and with slender part of 3 apparently slightly longer, with the proboscis about 3½–6 mm. long. *Hypopygium* of ♂ differs from that of *spinibarbus* practically only in that the hair on basal parts is longer and denser and the basal strut slightly broader. The species is very variable in size, some specimens being quite smallish and some specimens have even paler and more sericeous whitish gleaming pubescence.

In the British, Transvaal and South African Museums.

Length of body: about 7½–14 mm.

Length of wing: about 8–15 mm.

Locality.—Nieuwveld Karoo, Karoo and Namaqualand.

13 ♂♂ 36 ♀♀ *B. minusculus* n. sp.

Body, including scutellum, black, with whitish bloom on integument above; antennal joints 1 and 2 in some specimens, the palps, basal half or two-thirds of proboscis, extreme sides of abdominal tergites, very narrow and almost indistinct hind margins of tergites towards apex, especially in ♂♂, broader and sometimes very broad hind margins of sternites and the genital segment pallid or yellowish; legs pale yellowish to even almost pallid, the bases or basal halves of femora in some specimens and especially in ♂♂ darkened, with the last 2 or 3 or even 4 tarsal joints dark brownish to black and the apical halves of claws black, with the spines on legs whitish; pubescence relatively sparse but long and shaggy, especially in ♀♀, where it is very long and shaggy on occiput, thorax in front, on scutellum

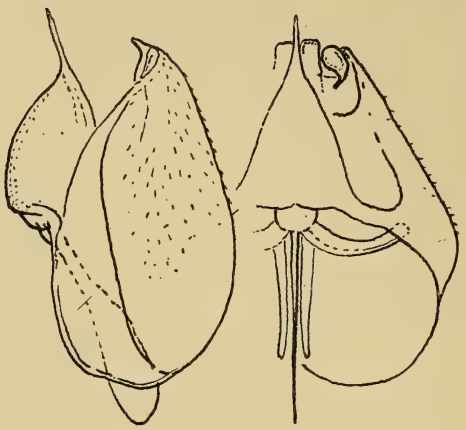
and abdomen, that on front part of body in ♂♂ distinctly much shorter than in ♀♀, that on occiput in ♀♀ very shaggy, long and conspicuous, the pubescence rather coarse and entirely dull snow or chalky white above and below, without any or a feeble sheen and tending to be erect on scutellum and abdomen, without any distinct differentiation into stouter elements such as bristles, but with a shorter sparse pubescence visible on abdomen and also with distinct flattened scaling along hind margins of eyes and along sides of genae, with the individual hairs on body distinctly fimbriate apically, giving the entire pubescence a " singed off " appearance, with the hairs on ocellar tubercle and a few on sides of frons in ♀♀ yellowish to brownish, those on ocellar tubercle in ♂♂ yellowish, the pubescence on face and genae also not differentiated into stouter and finer elements, but all the hairs equally coarse and fimbriate apically, with the scaling on legs cretaceous whitish and dense; wings hyaline, iridescent and with a feeble milky whitish tint in certain lights especially in costal cell and at base, where they are subopaquely whitish, rather feebly developed, the base narrowish, with the alula somewhat reduced and not very lobate, the axillary lobe also narrowish and not so arcuately lobate as in other species of *Bombylius*, with the basal comb vestigial and represented only by a small tuft of white hairs, with the veins dark blackish brown, the costal and first longitudinal veins yellowish or yellowish brown, with the discal cross vein at about middle, or just before middle or even much before middle, of discoidal cell, the discoidal cell truncate apically, with the second longitudinal vein tending to be undulating, with the squamae rather small, opaquely whitish. *Head* with the eyes in ♂♂ separated above by about the width of ocellar tubercle, with the interocular space in ♀♀ about, or slightly less than, 2 times as broad as broadish tubercle; antennae with joint 1 visibly thickened to even slightly barrel-shaped, quite 3 times as long as 2, with joint 3 about as long as, or slightly longer than, joints 1 and 2 combined, thickened in basal half or more, broadest just before base, rather rapidly narrowed apically, the apical part being slender and straight, often pallid at tip and ending in a relatively long, slender stylar element; proboscis shortish and about 1–1½ mm. long; palps slender and shortish, visibly 2-jointed. *Legs* comparatively slender, without any hairs on femora below and with only 2 or 3 feeble, separated spines from about middle to apex on hind ones below; tibiae with the spicules on front and middle ones very feebly developed or wanting and those on hind tibiae much less and more sparsely developed than in other species;

claws arcuately curved and with the pulvilli extending to about middle of claws in ♂♂ and slightly shorter in ♀♀; front tarsal joints in ♀♀ slightly more hairy than middle ones but scarcely thicker.

Types in the South African Museum and paratypes in the British Museum and Imperial Institute.

Length of body: about 3–5½ mm.

Length of wing: about 3–5 mm.



TEXT-FIG. 70.—Side view and half of ventral view of hypopygium of ♂ *Bombylius minusculus* n. sp.

Locality.—Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936) (Types); Bowesdorp (Mus. Exp., Nov. 1931); Nieuwoudtville (Ogilvie, 18–22/11/31). S.W. Karoo: Ceres, 1500 ft. alt. (Turner, Dec. 1920).

This species is apparently slightly variable in size and colour characters, but these differences are negligible except in the case of a ♂ in the British Museum which appears to represent a distinct variety as follows:—

1 ♂ *B. minusculus* var. *pallidiventris* n.

This single ♂-specimen can only represent a variety of *minusculus*. It differs from the typical form in the following points:—The entire abdomen is very pale brownish yellow, slightly more yellowish on sides, with the hind margins of the segments above broadly ivory whitish to yellowish, broader laterally and on venter; thorax and scutellum even more brownish than black; face, antennal joint 1 and front part of frons pallid. *Head* with antennal joint 1 slightly

more thickened and joint 3 slightly longer, broadest nearer base, distinctly more gradually narrowed apically, the apical slender part distinctly less slender than in the typical form, with the proboscis slightly longer, about 2 mm. long. *Wings* distinctly slightly more subopaquely tinted milky whitish, with the veins slightly paler and more pallid, even the costal veins paler, with the alula and axillary lobe slightly broader and more normally lobe-like and the wings also apparently broader. *Legs* also with about 3 spines on hind femora below, with the pulvilli a little more evident, extending a little beyond the middle of claws. *Hypopygium* of ♂ of variety (text-fig. 70), and of the typical form, with the basal parts compact, very broad and short, somewhat like that of *obesus*, with the neck region very short, practically absent, with the dorsum covered with very fine hairs which are somewhat sparse, with the inner apical angles of basal parts broad and truncated; beaked apical joints comparatively very small, insignificant, scarcely depressed above, their apices slender and bent downwards; aedeagus with the slender rod-like apical-part slightly extending beyond level of apical angles of basal parts, with the dorsal basally directed aedeagal struts visibly projecting on each side of basal strut, with the basal part of aedeagus broad and bell-shaped and without a ventral process below; lateral struts narrow and basal strut as shown in figure.

Type of variety in the British Museum.

Length of variety: about 5½ mm.

Length of wing: about 5 mm.

Locality.—S. Karoo: Matjiesfontein (Turner, 6–15/10/1928).

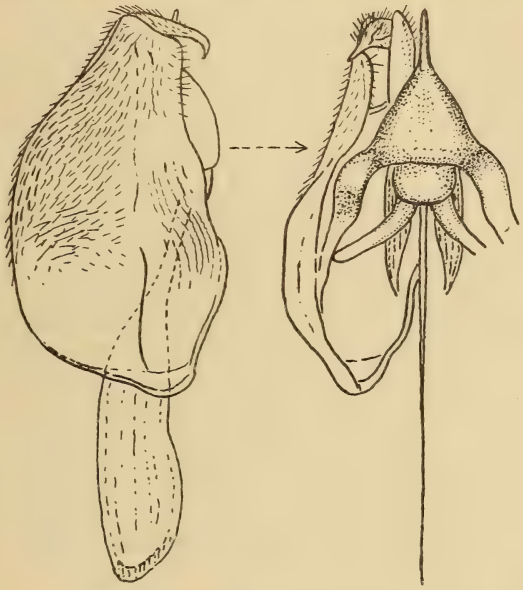
This species, including the variety, is very remarkable in many respects and ought strictly to be separated from the genus *Bombylius* s. str. or at least referred to a subgenus of the latter. The peculiar, coarse, fimbriate hairs on its body constitute a remarkable character only developed in another species of a new genus described further on. The feeble wings with a reduced alula and axillary lobe constitute still another aberrant character. These insects are feeble fliers and are usually found hovering over and settling on the warm sand during the hottest part of the day.

12 ♂♂ 9 ♀♀ *B. volucer* n. sp.

Body black, with the scutellum almost entirely reddish or reddish only across hinder part or even entirely black in some specimens, with the sides of hind margins of tergites more or less broadly reddish

in ♂♂, black in ♀♀ or with only sides of tergite 2 reddish, with the hind margins of sternites in ♂♂ broadly or sometimes even predominantly yellowish or reddish, the extreme edges being more ivory whitish, with the yellowish hind margins of sternites in ♀♀ narrower, with the genital segment also yellowish or reddish yellow to brownish in both sexes; legs yellowish, the femora almost entirely yellowish or only darkened at extreme bases in both sexes, but especially in some ♂♂, in others darkened to near middle and with the apical parts of tarsi dark brownish and the apical parts of claws black; pubescence dense, and shaggy shortish on thorax above and more so in ♂♂ than in ♀♀, that on abdomen longer, recumbent and shaggy in appearance, that on face dense and bushy as in other species in this series, the stouter bristly elements long and conspicuous on antennal joint 1 below, face and genae and in a brush-like tuft on lower parts of genae, the pubescence above and below on entire body silvery whitish and gleaming silvery or sericeous whitish, only that on body below less gleaming, with all the bristly elements on thorax and across abdomen also entirely white, with the pubescence on ocellar tubercle and on sides of frons in both sexes yellowish to brownish, sometimes even darker in ♀♀, with the scaling on legs white; wings vitreous hyaline, with the base, costal cell, basal part of marginal cell, basal half of first basal cell, second basal cell, base of anal cell and alula tinged subopaquely pale yellowish whitish to yellowish in both sexes, with the parts of veins in this area yellowish, becoming more brownish to very dark brownish towards apical part of wings, the base of first longitudinal vein and that of costal vein, however, also brownish, with distinct and dark spot-like infuscations at base of third longitudinal vein, on apical cross veins of basal cells, at bases of veins separating discoidal and third posterior cells and submarginal cells, on apical cross vein of discoidal cell and to a variable extent at apex of first posterior cell, with the basal comb white, with the discal cross vein at about middle, or slightly beyond middle, of discoidal cell, with a tendency for vein between discoidal and third posterior cells to be sharply bent at its base and sometimes provided where with an indication of a stump, with the squamae opaquely yellowish and fringed with white hair; halteres yellowish to yellowish brown, with very pale yellowish to almost whitish knobs. *Head* with the eyes in ♂♂ separated above on vertex by a space nearly or quite 2 times as broad as ocellar tubercle, with the interocular space in ♀♀ on vertex a little more than 3 to about $3\frac{1}{2}$ times as broad as tubercle; frons not depressed in ♀♀; antennae with joint 1 in-

crassate, sub-barrel-shaped or spindle-shaped, slightly knobbly below where bristles are inserted, sometimes more so towards apical part below, with the upper apical part of the joint slightly produced, quite 4, or even a little more, times as long as 2 along dorsal part, with 2 produced apically above to a variable extent, with joint 3 subequal to or slightly longer than joints 1 and 2 combined, distinctly club-shaped, markedly thickened basally and broadest just before base, then rapidly narrowed apically into a long slender part, which is slightly



Text-fig. 71.—Side view and half of ventral view of hypopygium of ♂ of *Bombylius volucer* n. sp.

dilated and pallid at apex, the apex ending in a slender style; proboscis about 3–4 mm. long. *Legs* without any hairs on femora below and with the front femora unarmed below; middle ones with 2 or 3 spines on antero-lateral aspect; hind femora with about 6–9 slender spines below from near base to apex; claws gradually arcuately curved, with the pulvilli in ♂♂ just about reaching or just falling short of middle of claws, shorter in ♀♀ and more confined to base; front tarsal joints in ♀♀ hairy and scarcely much thicker than middle ones. *Hypopygium* of ♂ (text-fig. 71) with the basal parts fairly densely, but not long, haired above; beaked apical joints broad in basal half, leaf-shaped, tapering to a slender beak which is directed downwards and slightly outwards; aedeagus with the apical slender

part projecting very slightly beyond the inner apical angles of basal parts, broad and bell-shaped basally as in *spinibarbus*; lateral struts slender; basal strut elongate and bat-shaped.

Types in the South African Museum.

Length of body: about 7–10½ mm.

Length of wing: about 7–10 mm.

Locality.—Namaqualand: Bowesdorp (Mus. Exp., November 1931) (Types); Garies Distr.; Klip Vlei (Mus. Exp., November 1931).

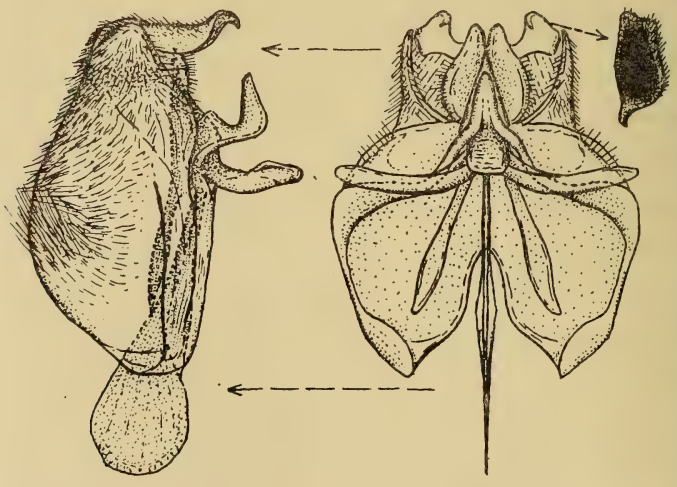
This species is easily recognised by its entirely gleaming silvery or sericeous whitish pubescence, in which respect it can only be confused with *leucolasius* n. sp. (below) and the various forms of *molitor* Wied. From *leucolasius* it may at once be distinguished by the absence of a yellowish or brownish tuft at apex of abdomen, the characteristically club-shaped third antennal joints, longer pulvilli, etc. From *molitor* it differs in having club-shaped third antennal joints, incrassate first antennal joints, a tuft of distinct bristles on lower parts of genae, more widely separated eyes in ♂♂, more distinct spots on wings, longer pulvilli, more recumbent and not fine and erect bottle brush-like or puff-like pubescence on abdomen, etc. In nature this species is a very rapid flier. It has the habit of hovering in the air, about four to seven feet above the ground, producing a very high-pitched monotonous hum, darting away with almost lightning rapidity to some other position a little farther away and remaining there stationary again while producing this hum. When settling in the warm sand or on the flowers of Mesembryanthemums it is a very conspicuous insect.

1 ♂ 3 ♀♀ *B. leucolasius* n. sp.

Body black; scutellum in this ♂ also entirely black, but more than hind half in ♀♀ ferruginous red; legs with the femora predominantly black in both sexes, only the extreme apices or knees yellowish brown, with the tibiae dark or darkish in both sexes, almost entirely blackish in ♂, more dark brownish in ♀♀, or the undersurfaces in ♀♀ may be even yellowish brownish and the upper surfaces blackish, with the tarsi very dark in ♂ and sometimes more dark brownish in ♀♀ but becoming darker apically in both sexes; pubescence very dense, fluffy and shaggy, especially in ♂, long, shaggy and dense on abdomen, with distinct and longish bristles on first antennal joints below, on face, genae and lower parts of genae, the latter, however, not so prominent as in *volucer*, on occiput, thorax in front, sides of

thorax, on upper part of mesopleuron, on post-alar calli, across hind margin of scutellum and across hind margins of abdomen, where they are very long especially towards apex, with the pubescence predominantly silvery white above and less gleaming and more frosty white below, with the bristly hairs on ocellar tubercle and basal part and sides of frons very dark blackish brown or coffee brownish in both sexes, with the bristles and hair in ♂ predominantly white, the bristles on post-alar calli and those towards apex of abdomen slightly yellowish or appearing more yellowish in certain lights, and with the hairs at apex of abdomen in ♂ also yellowish, with the stoutish bristles on thorax in front and on sides, on post-alar calli and on scutellum in ♀♀ even distinctly more reddish yellow, those transversely on sides of abdomen in ♀♀ and especially apically conspicuous, dark blackish brown and tipped yellowish and with the apical tuft of hairs in ♀♀ also dark blackish brown, with the rest of the pubescence in ♀♀ as in ♂ silvery whitish, with the scaling on legs silvery whitish and with the spines and spicules in both sexes very pale, pallid or very pale yellowish and in some specimens the spicules on tibiae are almost whitish; wings vitreous hyaline, becoming milky whitish in basal half, the base, costal cell and alula being more subopaquely whitish, with basal comb black, but with white scales above and a tuft of longish white hairs over it, with the veins very dark blackish brown, becoming black towards apical parts of wings, with black spot-like infuscations at fork of second and third longitudinal veins, on apical cross veins of basal cells, at base of second submarginal cell and a very faint one at base of third posterior cell, with the discal cross vein very much beyond middle of discoidal cell, with the squamae subopaquely whitish, black-bordered and fringed with long and dense sericeous white hairs; halteres yellowish brown to brownish, with very dark blackish brown knobs in both sexes. *Head* with the interocular space on vertex in ♂ broad, at least 1½ times as broad as broad tubercle, about 3 times as broad as tubercle in ♀♀; frons slightly convex in ♂ and with a slight medial depression in ♀♀; face broadish, but not projecting, densely covered with hairs and intermixed bristles; antennae with joint 1 distinctly thickened and in ♂ even distinctly incrassate, thickest across middle, about 3, or a very little more, times as long as 2, with the lower surface of it in ♂ knobbly or tubercular, the tubercles bearing long stoutish bristles, less knobbly in ♀♀, with joint 2 slightly longer than broad, with at least one blackish short bristle above in addition to white hairs, evident in the ♀♀, with joint 3 slender, elongate, quite 1½ times

as long as 1 and 2 combined and more slender in ♂, relatively shorter in ♀♀, arising from a broadish base in both sexes, then narrowed, becoming broader again at about the middle before gradually narrowing to apex, ending in a shortish and feeble style, with the upper surface showing traces of white scaling; proboscis about $3\frac{1}{2}$–4 mm. long, rather stoutish; palps short, black and distinctly 2-jointed. *Abdomen* in ♂ with the apical angles of last sternite angularly produced. *Legs* with longish hairs on femora below, especially in ♂, without any



TEXT-FIG. 72.—Side and ventral views of hypopygium of ♂ of *Bombylius leucolasius* n. sp.

spines on front femora below but with some lateral spines apically on each side; front and middle femora also narrowed apically; middle femora in addition to subapical spines with 1 or 2 spines in front; hind femora with about 10–11 long, slender spines from about middle to apex in ♂ more or less arranged in two irregular rows, in ♀♀ with about 5–7 longish spines in a single row; tibiae with the spicules markedly long; claws slender, long, almost straight, with the pulvilli wanting in ♀♀, vestigial and scarcely visible at extreme base of claws in ♂. *Hypopygium* of ♂ (text-fig. 72) with a distinct and conspicuous lobe-like or tongue-shaped, apically projecting, ventral process below aedeagus; beaked apical joints slightly broadened, shaped as shown to right of middle figure and depressed above.

Types in the South African Museum.

Length of body: about 8–11 mm.
Length of wing: about 7–10 mm.
Locality.—N.W. Karoo: Calvinia (Mus. Exp., Sept. 1936).

This beautifully white-haired species can only be confused with *volucer* n. sp., *molitor* Wied. and its varieties and with *minusculus* n. sp. From *minusculus* it may at once be distinguished by its very much larger size, non-fimbriate hairs and black legs. From *volucer*, which it resembles in the incrassate first antennal joints in ♂ and broad interocular space in ♂, it may be readily distinguished in both sexes by its almost entirely dark or black legs, black femora at least, non-club-like third antennal joints, black basal comb, black veins in wings, a discal cross vein which is very much beyond middle of discoidal cell, different hypopygium, more reduced pulvilli and distinctly more produced apical angles of last sternite in ♂. From *molitor* and its varieties it may be distinguished by the broader interocular space in ♂, more incrassate first antennal joints, predominantly black femora and even darker tibiae, much darker and black veins in wings, the discal cross vein much beyond middle of discoidal cell, black basal comb, dark blackish brown knobs to halteres and more angularly produced apical angles of last sternite in ♂.

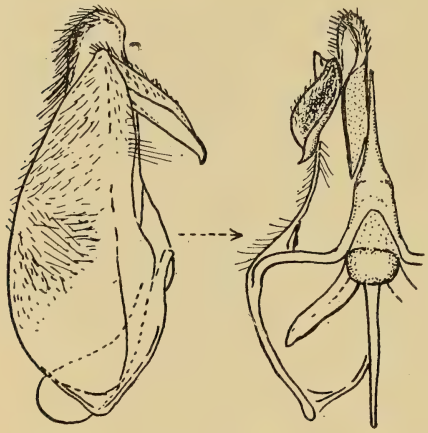
B. peringueyi Bezz.

(P. 33, Ann. S. Afr. Mus., vol. xviii, Pl. I, fig. 6, 1921.)

This and the following two species with their varieties are peculiar in that the pubescence on abdomen is very dense and fine, standing up erect, puff-like or bottle brush-like, that on facial region, though dense and shaggy, has fewer bristles on face in front and on lower parts of genae. There are no distinct and stout projecting bristles. The first antennal joints are not markedly incrassate and the third joints are not club-shaped. The discal cross vein is much before middle of discoidal cell and the spot-like infuscations on cross veins and other veins are fewer and less conspicuous and the pulvilli are almost invisible or wanting in both sexes. In all these characters these species differ from the previous *spinibarbus*, *angulosus* and *volucer*-series.

This species *peringueyi* is one of the most beautiful species of *Bombylius* and is easily recognised by the fine puff-like pubescence on the abdomen, which is for the greater part strikingly snow or frosty white, but that on tergite 1 and at apex of abdomen in ♂♂ and on tergite 1 and at apex and also on tergites 4 and 5 in ♀♀ deep chocolate

brownish, that on thorax above and scutellum in ♂♂ appearing chocolate brown from above, more gleaming pale golden brownish from side, that on front part even more gleaming whitish in some specimens, that on thorax above in ♀♀ appearing more greyish brown from above, but from side that in front is more gleaming whitish and that discally more gleaming fulvous, that on pleurae in ♂♂ fulvous, more brownish on coxae and touched with whitish along middle, in ♀♀ with distinctly more whitish pubescence on pleurae, that on facial region and head below in both sexes chalky or cretaceous white, with the bristles on thorax in front and sides in front of wings reddish or reddish brown in both sexes, those on posterior calli and on scutellum darker and more chocolate brownish, those on occiput yellowish in ♀♀ and more whitish in ♂♂, those on face in ♂♂ gleaming whitish, more yellowish in ♀♀, those transversely across hind margins of tergites gleaming whitish in white-haired parts and dark brownish or chocolate brownish across tergites with chocolate coloured pubescence, the bases of individual dark coloured bristles being, however, yellowish, those on venter whitish in basal part and yellowish, but brown-tipped, on sides and towards apex; wings greyish hyaline, but with a faint, but distinct, greyish reddish tinge in certain lights due to reddish brown veins, the costal cell and base subopaquely pale yellowish, the basal parts in ♂♂ with even a more distinct pale yellowish brownish tinge, with very faint and scarcely perceptible spot-like infuscations at base of third longitudinal vein and on apical cross veins of basal cells, with the basal comb chocolate brownish in ♂♂ and sometimes more fulvous brownish in ♀♀, with the discal cross vein much before middle of discoidal cell, with the squamae opaquely yellowish brown to yellowish and fringed with fulvous hairs in ♂♂ and paler, more yellowish hair in ♀♀; halteres with pale yellowish knobs, sometimes more yellowish brown in ♂♂.



Text-fig. 73.—Side view and half of ventral view of hypopygium of ♂ *Bombylius peringueyi* Bezz.

Head with the eyes in ♂♂ separated above by a space a little broader

than the ocellar tubercle, the interocular space on vertex in ♀♀ quite 3 times as broad as tubercle; antennae with joint 1 slender, quite 3 times as long as 2, appearing slightly longer in ♀♀, with joint 3 rod-like, gradually tapering apically, broadest a little before base and ending apically in a minute stylar element; proboscis about 4–5 mm. long. *Legs* with the femora darkened in ♂♂ to beyond or much beyond middle, only basally in ♀♀, the hind ones being predominantly dark in both sexes, with the tibiae and tarsi predominantly yellowish in both sexes, with about 2 or 3 spines on inner side and 2 or 3 on outer side apically on front femora; middle ones with about 2–4 spines in front and some apical spines on sides; hind femora with about 8–11 well-developed spines below from near base to apex in addition to lateral apical spines; claws slender, almost straight and in both sexes without any distinctly visible pulvilli; tibiae with rather numerous spicules; front tarsal joints in ♀♀ not modified. *Hypopygium* of ♂ (text-fig. 73) with the inner apical angles of basal parts very prominent, rounded apically; beaked apical joints, elongate, but broadened and leaf-like, acute apically; aedeagus without a process below.

In the Transvaal and South African Museums.

Length of body: about 10–12 mm.

Length of wing: about $10\frac{1}{2}$–$11\frac{1}{2}$ mm.

Locality.—Karoo, Namaqualand and Bushmanland.

B. nigripecten Bezz.

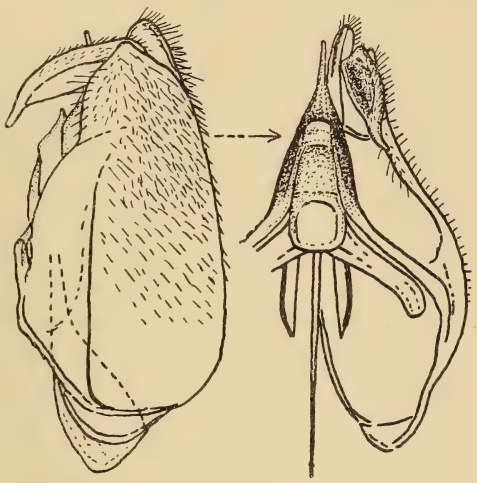
(P. 32, Ann. S. Afr. Mus., vol. xviii, 1921.)

In addition to the ♂-type there are 3 ♀♀ in the South African Museum. As the ♀ of this species is still undescribed, the following supplementary description may be added to Bezzi's description:—

Body in ♀♀ black as on ♂, the abdomen above, however, entirely black and without red on the sides as in ♂; legs with the femora blackened to much beyond middle in both sexes, only the apices yellowish, the tibiae and tarsi predominantly yellowish, only apical parts of tarsi darkened and claws predominantly black; pubescence dense and fine, that on abdomen, as in *peringueyi*, dense, fine, erect and puff-like, the bristles on antennae below and on face in front not very long as in *spinibarbus*-series and without a tuft of bristles on lower parts of genae, pubescence predominantly gleaming sericeous or silvery white above on occiput and thorax in both sexes, that on face, genae, head below, entire pleural parts and base of venter on

each side snow or frosty whitish, that on tergites 2, 3 and 6 in ♀♀ conspicuously sericeous white, that on scutellum in both sexes gleaming pale yellowish brown or fulvous, that across tergite 1 in both sexes slightly more fulvous brownish, that across tergites 4, 5 and 7 in ♀♀ pale yellowish, but tipped dark chocolate brownish, with, however, shortish snow white, erect hair-like scaling across the hind margins of most of the tergites visible as a sort of undergrowth, with the pubescence on abdomen in ♂ more predominantly whitish, only that across tergite 5 tipped chocolate brownish, the pubescence on ocellar tubercle and sides of frons basally in both sexes yellowish brownish, with the bristly elements on antennae below and face in both sexes gleaming whitish, those on thorax in front and sides, on upper parts of mesopleuron, post-alar calli and scutellum very pale yellowish or tinted yellowish in ♂, deeper golden yellowish to reddish golden in ♀♀, with the stoutish bristles on abdomen in ♂ on tergites 3 to 5 yellowish and with their apical halves brownish, those across basal tergites much paler and tinted pale yellowish and those apically more whitish, with all the transverse bristles across hind margins of all the tergites from 2 in ♀♀ chocolate brown, only their bases yellowish, these bristles longer towards apex of abdomen, with the bristles on venter also chocolate brown, their bases yellowish and more so in ♂, the scaling on legs dense and gleaming white; wings in ♂ tinged rather deeply yellowish brownish up to end of costal cell and across middle of marginal, first submarginal and first posterior cells, across apical part of discoidal cell to anal cell, the infuscation, however, not well marked off but imperceptibly merging into more hyaline apical and posterior parts, the base of costal cell and base of wings more subopaquely yellowish brown, the wings more greyish hyaline in ♀♀, only the base, costal cell, and basal half of first basal cell being more subopaquely tinged yellowish, with distinct brownish spot-like infuscations at base of third longitudinal vein, on apical cross veins of basal cells and indistinctly at bases of the veins separating discoidal and third posterior cells and the 2 submarginal cells and sometimes even faintly on apical cross vein of discoidal cell, all these infuscations apparently more distinct in ♂, with the veins reddish brown, slightly darker towards apical part of wings, with the discal cross vein just before middle of discoidal cell sometimes tending to be even at about middle, with the basal comb black, with the squamae opaquely yellowish, dark bordered and fringed with whitish to pale creamy hairs, including a few brownish bristly elements; halteres yellowish brown to brownish and with pale yellowish to sometimes slightly

yellowish brownish knobs. *Head* with the eyes in ♂ separated above by the width of ocellar tubercle, the space in ♀♀ about $3\frac{1}{3}$–$3\frac{1}{2}$ times as broad as tubercle; antennae with joint 1 slender, not thickened, quite 4, or even a little more, times as long as 2, with 3 only about $1\frac{1}{4}$ times as long as 1 and 2 combined, almost rod-like, the apical third being more slender; proboscis about 4 mm. long. *Legs* with longish hairs on femora below basally, longer in ♂, without any visible spines on front ones below; middle femora with about 2 spines in front below and hind femora with about 7–9 spines below from near base to apex; claws slender, substraight and with the pulvilli wanting in both sexes; front tarsal joints in ♀♀ slightly more hairy than middle ones but scarcely thicker, practically unmodified. *Hypopygium* of ♂ (text-fig. 74) resembles that of *peringueyi* and *molitor* in having comparatively elongate beaked apical joints and prominently rounded and slightly produced inner apical angles of basal parts; aedeagus with the slender apical part nearly reaching level of the inner apical angles of basal parts, with the basal rim, connecting the rami on each side, sharply and flatly projecting like a ventral aedeagal process.



Text-fig. 74.—Side view and half of ventral view of hypopygium of ♂ *Bombylius nigripecten* Bezz.

In the South African Museum.

Length of body: about 9–10 mm.

Length of wing: about $8\frac{2}{3}$–$9\frac{1}{2}$ mm.

Locality.—Namaqualand: Bushmanland.

3 ♂♂ 5 ♀♀ *B. nigripecten* var. *cinctutus* n.

From the typical forms of *nigripecten* this new variety differs in being smaller, in having the entire abdomen black, without even an indication of reddish on sides in ♂♂, with the venter also much darker

and only obscurely brownish along middle in ♂♂; scutellum in both sexes also less extensively reddish, only obscurely dark reddish discally or towards hind margin; pubescence with the bristles on sides of thorax darker, deeper or more brownish yellow to even dark brownish, those on abdomen chocolate brownish but with less of their bases yellowish and with some discally on tergite 2 yellowish and not dark brownish, with the hair or bristly hairs on frons, scutellum, sides of tergite 1 and sides of tergites 4 and 5 slightly darker and more chocolate brownish than in *nigripecten*, those on tergites 4 and 5 distinctly tipped more brownish; wings less distinctly tinged yellowish brownish in ♂♂, less subopaque, more greyish hyaline, only slightly subopaque towards base and subopaquely yellowish in costal cell, the infuscations on cross veins also much less distinct in ♂♂, only the basal 3 and the one at base of vein separating the submarginal cells being perceptible, with the discal cross vein also tending to be nearer base than middle of discoidal cell. *Head* with antennal joint 1 about 4 times as long as 2, with joint 3 slightly more slender and rod-like than in the typical form and with the interocular space in ♀♀ sometimes quite 3½ times as broad as tubercle; proboscis slightly shorter, only about 2–2½ mm. long (3–4 mm. in typical *nigripecten*). *Legs* with about 5–7 spines on hand femora below (7–9 in *nigripecten*).

Types in the South African Museum, paratypes in the Imperial Institute of Entomology and in the British Museum.

Length of body: about 7–7½ mm.

Length of wing: about 6½–7 mm.

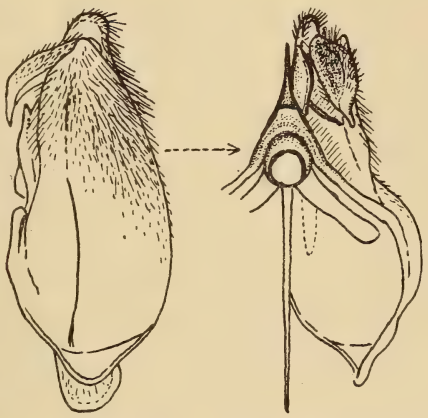
Locality.—Nieuwveld Karoo: Victoria W.—Beaufort West. Distr. (Mus. Staff, Oct. 1935) (Types). C. Karoo: Graaff-Reinet (Ogilvie, 24–27/10/31). S. Karoo: N.E. of Touw's River (Turner, 26/10/28).

B. molitor Wied.

(P. 632, Aussereurop. Zweifl. Ins. Dipt. ii, 1830; Bezzi, p. 34, Ann. S. Afr. Mus., vol. xviii, 1921; Paramonow, p. 73, Trav. Mus. Zool. Kiev, No. 11, 1931; as syn. *argentifer* Walk., p. 276, List. Dipt. Brit. Mus., part ii, 1849; Bezzi according to specimens labelled by Bigot, p. 34, Ann. S. Afr. Mus., vol. xviii.)

Wiedemann's description of this species, supplemented by Paramonow's description of Wiedemann's type ♂ and other specimens, shows beyond doubt that Walker's *argentifer* is a synonym of *molitor*. Bezzi (p. 61, The Bombyliidae of the Ethiopian Region, 1924) also

refers in a footnote to Speiser's contention that the two species are identical. The species is easily recognisable by its entirely snow white pubescence and milky whitish tinted wings, only the hair on ocellar tubercle and base of frons on each side being slightly brownish in ♂♂ and the pubescence on tergites 4–7 in some ♀-varieties is slightly yellowish or tipped brownish. The pubescence on abdomen is characteristic for this series, and is dense, fine, erect and puff-like or bottle brush-like. The spot-like infuscations in wings at base of third longitudinal vein and on apical cross veins of basal cells are fainter and much less distinct than in other white-haired species of *Bombylius*. The legs have the femora entirely yellowish or they may be darkened or blackened to beyond middle in both sexes, their apices and the tibiae and tarsi being yellowish, with the claws substraight and the pulvilli wanting in both sexes. The head has the eyes in ♂♂ separated above by width of ocellar tubercle, the interocular space in ♀♀ quite 3 times as broad as ocellar tubercle; antennae with joint 1 slender, slightly more than 3 times as long as 2, with 3 rod-like and only slightly tapering apically; face and antennae below with stoutish bristles, but without a brush or tuft of stout bristles on lower parts of genae; proboscis about 3–4½ mm. long, entirely black. *Hypopygium* of ♂ (text-fig. 75) is much like that of *nigripecten*, but the hair on basal parts is slightly more dense and longer towards the neck region above; beaked apical joints slightly shorter and their apices shorter and less sharp; aedeagus slightly shorter and its basal part less elongate, the lip-like process below projecting slightly more and the basal strut slightly narrower and more rounded posteriorly.



Text-fig. 75.—Side view and half of ventral view of hypopygium of *Bombylius molitor* Wied. (=*argentifer* Walk.).

The species appears to be slightly variable especially in the presence or absence of yellowish pubescence on abdomen or yellowish bristly elements on body. Some ♀♀ especially differ from the typical and entirely white-haired ♀♀ in having some yellowish and dark-tipped

pubescence at apical part of abdomen and in some specimens especially on tergites 4 and 5 or 4–7. The wings in some ♀♀ with such dark hairs also show more distinct and slightly more conspicuous spot-like infuscations, and in addition to the usual three spots also faint ones at bases of veins between discoidal and third posterior cells and the 2 submarginal cells and the basal comb may be slightly yellowish. The sides of abdominal segments may also be reddish in such ♀♀ as they may be in some ♂♂, the femora being entirely yellowish in both sexes. There is also a single ♂ specimen from Okahandja in the British Museum which differs from the typical ♂♂ in having the bristles in front of wings on each side, those on postalar calli and on scutellum distinctly tinted yellowish, in having the spines on legs also slightly more yellowish, the extreme sides of abdomen and venter apically tending to be reddish, etc. The slight varieties are separated by the essential characters given in the key. This species can only be confused with *minusculus*, *volucer* and *leucolasius*. From *minusculus* it can at once be distinguished by its much larger size, non-fimbriate and gleaming pubescence, more slender first antennal joints and absence of pulvilli. From *volucer* it is distinguished by the slender first antennal joints, the rod-like and not club-like third antennal joints, the absence of stoutish bristles on lower parts of genae, the less spotted wings in which discal cross vein is before middle of discoidal cell and the absence of pulvilli. From *leucolasius* it may be distinguished by the non-incrassate first antennal joints, the absence of long bristles on first antennal joints below, the much paler wing-venation, the fewer and less conspicuous spots in wings in which the discal cross vein is also before middle, not very much beyond middle, of discoidal cell, the absence of black transverse bristles on abdomen in ♀♀, and the paler or yellowish tibiae, etc.

In the British and South African Museums.

Length of body: about 7–10 mm.

Length of wing: about 7–10 mm.

Locality.—South Western Cape Province, Karoo, Namaqualand and South West Africa.

1 ♂ 1 ♀ *B. bezzii* n. sp.

(Syn. = *molitor* Bezz. nec Wied., p. 34, Ann. S. Afr. Mus., vol. xviii, 1921.)

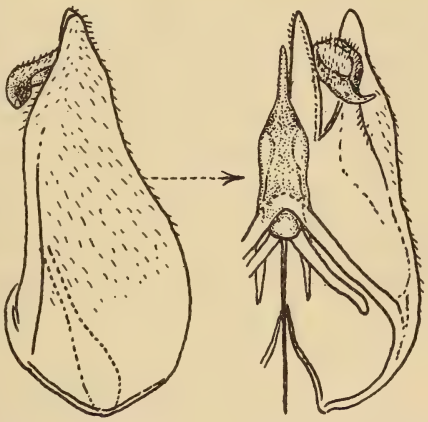
These specimens were referred to *molitor* Wied. by Bezzi. A careful comparison of these specimens with Wiedemann's description

of *molitor* (p. 632, Aussereurop. Zweifl. Ins. Dipt., ii, 1830) shows that these insects are entirely different. Wiedemann states that his ♂-specimen is entirely covered with white hair, has ochreous yellowish legs and uninfuscated wings, whereas in the above specimens there are dark bristles across the tergites, tufts of chocolate brownish hair on sides of abdomen, the entire femora are blackened and the wings in the ♂ are tinged yellowish brownish in costal cell and more or less in the basal half. In view of these differences and other important characters, I propose to refer these specimens provisionally to *Bombylius* and to a separate and distinct species *bezzii* having the following characters:—

Body black, with the hind part or half of scutellum reddish brown, the medial part of sternites reddish brown, more extensive in ♂, with the hind margins of sternites ivory whitish, with the apical parts of third antennal joints yellowish; legs with the femora in both sexes black, only their apices yellowish, the tibiae and tarsi yellowish, but the hind tibiae tending to be more brownish yellow above, the apices of tarsi also slightly more brownish and the greater part of claws blackish, with the spines and spicules on legs pallid or very pale yellowish; pubescence on the whole shortish, that on thorax above, apart from the bristly elements, fine, shortish and recumbent, sparse discally, that on abdomen denser and slightly longer in ♂ than in ♀, the bristles on abdomen in ♀ longer than pubescence and apically even longer, the fine hairs towards apex in both sexes longer than basally, with the pubescence on facial region dense and predominantly in form of scales or scale-like hairs, the pubescence on face relatively shortish, the bristly elements round upper part of buccal cavity fewer and shorter than in the *spinibarbus*, *angulosus* and *volucer*-series, and the lower parts of genae with only hairs and without a brush of stiff bristles, the pubescence on body predominantly white, dull cretaceous or chalky whitish on face and head below and on pleurae and sides of abdomen basally, more gleaming sericeous or silvery whitish above, that basally on tergite 1 tinted yellowish, that in tuft-like patches on sides of tergites 2 and 3 in ♂ and 2–4 in ♀ dark chocolate brownish, slightly paler and more fulvous in ♂, with the fine hairs across hind margins discally on tergites 2–3 in ♂ pale yellowish brownish, in ♀ much paler discally and with a more silvery sheen, the pubescence on venter in ♀ fulvous brownish, but much paler in ♂ and with denser snow whitish pubescence on each side of venter basally, with the bristly hairs on ocellar tubercle and basal part of frons yellowish in ♂, much darker and chocolate

brownish in ♀, with the bristles on thorax in front in ♂ yellowish or gleaming pale golden yellowish, those on post-alar calli and scutellum in ♂ slightly deeper yellowish, the bristles on occiput, thorax and scutellum in ♀ reddish brown and those transversely on all the tergites in ♀ dark reddish brown to chocolate brownish, those towards apex being intermixed with white ones, with the transverse bristles across tergites 2 and 3 in ♂ pale yellowish brown and those towards apex entirely white like rest of pubescence there, with the bristles on venter very dark chocolate brown in both sexes, with the scaling along the centre of abdomen above and concentrated in apical part in ♀ snow white, visible as a central stripe, with the dense scaling around eyes chalky whitish, the finer scaling across vertex in ♀ dull yellowish brownish, with the dense scaling on legs chalky or cretaceous whitish; wings vitreous hyaline, more extensively so in ♀, with the base, costal cell and from its end obliquely across to about middle of anal cell in ♂ distinctly tinged subopaquely pale yellowish brownish, but with only the base, costal cell and more or less basal half of first basal cell in ♀ subopaquely yellowish, with the basal comb yellowish in ♂, chocolate brownish in ♀, with the veins reddish brown, but paler and more yellowish in infuscated area, the first longitudinal vein yellowish, with distinct dark brownish spot-like infuscations at base of third longitudinal vein, on apical cross veins of basal cells, at bases of veins separating the discoidal and third posterior cells and submarginal cells, on apical cross vein of discoidal cell and faintly at apex of first posterior cell, with the discal cross vein very near base of discoidal cell, making first basal cell only a little longer than second one, with a tendency for vein between submarginal cells to be sharply bent at its base and there with an indication of a short stump, with the squamae opaquely yellowish and fringed with white hair; halteres yellowish brown or brownish and with pale yellowish knobs. *Head* remarkably broad, quite as broad as or even slightly broader than broadest part of thorax, rotundately rounded in front, especially in ♀; eyes comparatively large and convex in ♂, the interocular space at narrowest part above about as broad as front part of ocellar tubercle, the upper facets markedly coarser than lower ones and rather well marked off from finer ones in lower part, with the eyes smaller in ♀ and remarkably broadly separated on vertex, the interocular space being quite 6½ times as broad as tubercle; frons remarkably broad in ♀, transverse and convex; facial region very broad in ♀ and in ♂ also relatively broader than in other species of *Bombylius*; antennae with joint 1 slender, quite 4 times as long as 2

and without long and stoutish bristles below as in preceding species, with 2 only slightly longer than broad, its upper apical part only slightly prominent, with 3 more or less club-shaped, thickened in basal half, the apical half being slender, ending in a fine, slender stylar element; proboscis about 4 mm. long; palps shortish and slightly clavate apically, separate joints not being visible. *Legs* with shortish, but distinct, hairs on femora below basally, apparently without any spines below on front femora; middle ones with about 3 spines in front; hind ones with about 5–6 spines below from just before middle to apex; claws gradually arcuately curved, the pulvilli in ♂ just falling short of middle of claws, confined to base in ♀. *Hypopygium* of ♂ (text-fig. 76) with the inner apical angles of basal parts prominently projecting and the outer apical angles equally prominent; beaked apical joints broadened in basal half, leaf-shaped, tapering apically, the apical beak turned outwards, with a foveate depression above in basal half of joints; aedeagus with the apex not reaching level of inner apical parts of basal parts, with the basal half more or less tumid on each side; lateral struts slender and rod-like; basal strut feebly developed.



Text-fig. 76.—Side view and half of ventral view of hypopygium of ♂ *Bombylius bezzii* n. sp.

Types in the South African Museum.

Length of body: about 9–10½ mm.

Length of wing: about 9–10 mm.

Locality.—Namaqualand (Bushmanland): Jakhals Water (Lightfoot, Oct. 1911) (Holotype); Henkries (Lightfoot, Oct. 1911) (Allotype).

This is a very remarkable species of *Bombylius* and is easily recognised by the very broad head, very broad interocular space in ♀, broad facial region, the chocolate brownish transverse bristles across entire abdomen in ♀ and across tergites in basal half in ♂ and tufts of dark pubescence on sides of abdomen in both sexes and by the discal cross vein which is nearer base of discoidal cell than in the

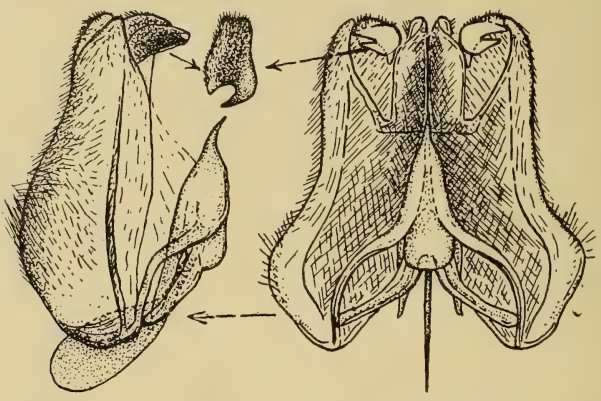
majority of other species of *Bombylius*. This species and the following species *anastoechoides* n. sp. appear to represent bridging or transitional species between *Bombylius* and *Anastoechus*, agreeing with the former in having the first basal cell not exactly equal to second basal cell in length and with the latter in having a broad head, broad interocular space in ♀, broad frons and the general nature of the pubescence which is distinctly more like that of *Anastoechus*. There is even a superficial resemblance between these species and species of *Anastoechus*, such as *erinaceus* and *macrophthalmus*. In fact if characters, such as a remarkably broad head, frons and interocular space and general nature of pubescence alone be taken as diagnostic characters of *Anastoechus* and not the position of the discal cross vein in wings, both this and the following species ought to be included in the genus *Anastoechus*. Both these species are found in a very interesting ecological environment in which the vegetation is predominantly or almost entirely composed of succulents, Mesembryanthemums and xerophytic plants, usually of small stature, where there is much aridity and barrenness, high diurnal temperatures, a low humidity and a very low rainfall.

1 ♂ *B. anastoechoides* n. sp.

Black; antennal joint 1 to a large extent especially below, face, more than hind half of scutellum, the hind margins of tergites on extreme sides of abdomen below and the hind margins of venter ferruginous or reddish yellow; legs with the femora black, their apices yellowish, with the front and middle tibiae predominantly yellowish, the hind tibiae predominantly dark brownish or blackish, only the bases slightly more yellowish, with the hind tarsi predominantly dark, the greater part of front and middle ones yellowish, only the apical part dark and the claws dark, with the spicules and spurs on tibiae pallid and the spines on the femora more golden yellowish; pubescence very dense and shortish, very dense and *Anastoechus*-like on facial region, body below and on venter, that on face, sides of face and genae frosty white and in form of distinct white bristles on first antennal joints below, on face and genae intermixed with denser scale-like hairs, with the flattened scaling behind eyes and dense pubescence on head below also frosty white, the dense woolly pubescence on pleurae, coxae and the pubescence on venter frosty white, the hairs on occiput, the more or less depressed ones on thorax in front, sides of thorax, on scutellum and on tergite 1

also white but distinctly gleaming silvery whitish, the dense erect hairs on ocellar tubercle and basal part of frons dark coffee brownish, with the shortish depressed pubescence on disc of thorax (where not denuded), especially along sides and also along extreme sides in front of wings gleaming brownish golden, with the stoutish bristles on occiput, front part and sides of thorax, on upper part of mesopleuron in front of wings, the macrochaetal bristles, a few bristles on each side above wings and the last two bristles on post-alar calli dark reddish brown, one macrochaetal bristle in front of wing-base and most of those on post-alar calli, however, white, with the mesopleural bristles just below wing-base predominantly whitish but with some pale yellowish intermixed ones, with the metapleural tuft pale yellowish, with the pubescence on abdomen dense and long, long and tuft-like apically, predominantly white, but with a tuft of pale yellowish brown hair and blackish brown bristly hairs on each side across hind margins of tergites 2 and 3 and a transverse band of gleaming brownish golden hair-like scaling across hind margins of tergites 2 and 3, with the stoutish transverse bristles across hind margins of tergites white, but those on sides of tergites 2 and 3 and some on sides of 4 dark blackish brown, with the bristles on venter whitish and with the flattened scaling on legs white; wings with the well-developed basal comb blackish brown but covered with white hair-like scaling, with the basal half of wings up to end of costal cell and across apical cross veins of basal cells to apical part of anal cell yellowish brownish, becoming more subopaquely whitish towards base and in costal cell, with the rest of the wings milky whitish, the milky white occurring broadly along each side of the veins, the middle parts of the cells thus appearing darker and more greyish, with the veins blackish brown, becoming more brownish or yellowish along apical part of costal vein, along first longitudinal vein, at base and along vein between second basal and anal cells, with faint, but distinct, spot-like darkish infusions at apex of costal cell, on apical cross veins of basal cells, at apex of anal cell, at base of third posterior cell, on apical cross vein of discoidal cell, at base of second submarginal cell and to a lesser extent at end of second longitudinal vein, with the discal cross vein much before middle of discoidal cell, the discoidal cell narrowish and truncate apically, with a tendency for vein between submarginal cells to be rapidly bent down at right angles at its base to meet the first posterior cell and to be provided at this bend with a short stump, the alula yellowish brown like basal half of wing, but fringed with white hairs, with the squamae sub-

opaquely pale yellowish, brownish-bordered and fringed with white hairs which gleam creamy yellowish in certain lights; halteres yellowish brown, with the cup of knob ivory yellowish, but lower part of knob more brownish. *Head* very broad and across eyes scarcely narrower than across broadest part of thorax, with the eyes broadly separated above, much broader than the ocellar tubercle, about 2 times as broad as tubercle, with the upper facets of eyes only a little coarser than those in lower half; frons large, rapidly



TEXT-FIG. 77.—Side and ventral views of hypopygium of ♂ *Bombylius anastoechoides* n. sp.

broadening apically; sides of face and upper parts of genae very broad; face broad and rounded; buccal cavity broad; proboscis longish and stoutish, about 6 mm. long; palps yellowish, short and stoutish; antennae with joint 1 shortish, only about 2 times as long as 2, with 3 constricted ring-like at base, club-shaped, broadest in slightly less than basal half, then narrow straight and slender to apex, the terminal style fine and directed upwards. *Legs* without any spines below on front femora; middle femora with about 3 spines in apical half in front and 1 small one behind; hind femora with about 7 spines on outer side below from near base to apex and 1 or 2 on inner side apically, the apical one of which is prominent and with sometimes 2 subapical spines on outer side above; claws substraight, only slightly curved, slender, with the pulvilli much reduced, vestigial and confined to base of claws and scarcely visible. *Hypopygium* of ♂ (text-fig. 77) differs from that of *bezzii* in having the beaked apical joints differently shaped, the outer apical part being angularly produced, giving the joint a spanner-like shape,

and the inner and outer apical angles of basal parts not so produced as in *bezzii*.

Type in the South African Museum.

Length of body: about 10 mm.

Length of wing: about 10½ mm.

Locality.—Namaqualand: Knersvlakte, between Van Rhynsdorp and Nieuwe Rust (Mus. Exp., Nov. 1936).

Superficially this insect bears a marked resemblance to species of *Anastoechus*, from which genus it may, however, be at once distinguished by the longer first basal cell. Its position in the genus *Bombylius* is nevertheless anomalous, and together with *bezzii* it appears to be transitional between *Bombylius* and *Anastoechus*, and is provisionally placed in the former. From the ♂ of *bezzii* it differs in having a broader interocular space on vertex, shorter first antennal joints, in having the basal halves of wings more distinctly yellowish brown and the apical halves more milky whitish along the veins, in having distinctly more reduced pulvilli, etc.

The following species, described from Southern Africa, have not been included in the above key and descriptions, owing to the fact that they are either not represented in any of the collections before me or, if represented, have been unwittingly redescribed by me and other authors, due to the very unsatisfactory and misleading original descriptions. The descriptions of older authors, such as Walker and especially Macquart, who described quite a number of Cape species, are so brief and inadequate that identification of their species is impossible without an examination of the original types, if these are still in existence. There is no doubt that many of Macquart's descriptions of large and bulky Cape species may possibly refer to some of the more common forms referred to group 3 and which have been described by Fabricius, Wiedemann, Loew and Bezzi:—

B. albiventris Macq., p. 87, Dipt. Exot. ii, Table VI, fig. 5 and Table VII, fig. 5, 1840.

B. aurantiacus Macq., p. 89, Dipt. Exot. ii, Table VI, fig. 2 and Table VII, fig. 5, 1840.

B. bifidus Bezz., p. 61, The Bombyliidae of the Ethiopian Region, 1924.

B. dimidiatus Macq., p. 90, Dipt. Exot. ii, Table VII, fig. 5, 1840 (? = *hypoleucus* Wied. or *melanurus* Lw.).

B. flaviceps Macq., p. 88, Dipt. Exot. ii, Table VI, fig. 4 and Table VII, fig. 5, 1840.

B. flavus Macq., p. 96, Dipt. Exot. ii, Table VII, fig. 5, 1840.

B. inornatus Walk., p. 278, List. Dipt. Brit. Mus., ii, 1849 (? S. Africa).

B. ruficeps Macq., p. 88, Dipt. Exot. ii, Table VII, fig. 5, 1840.

B. rufus Macq., p. 91, Dipt. Exot. ii, Table VI, fig. 5 and Table VII, fig. 3, 1840 (? = *eurhinatus* Bezz.).

B. simplicipennis Bezz., p. 59, The Bombyliidae of the Ethiopian Region, 1924.

B. tinctus Walk., p. 277, List. Dipt. Brit. Mus., ii, 1849 (? S. Africa).

Gen. *Anastoechus* Ost. Sack.

(P. 251, Bull. U.S. Geol. Surv., iii, 1877; Becker, p. 50, Ann. Mus. Nat. Hung., vol. xiv, pt. i, 1916; Bezzi, p. 46, Ann. S. Afr. Mus., vol. xviii, 1921 and p. 72, The Bombyliidae of the Ethiopian Region, 1924; Paramonow, p. 74, Mem. Acad. d. Sc. de l'Ukraine, tom. xv, livr. 3, 1930; Engel, p. 287, Die Fliegen. d. Pal. Reg. Lief., 87 (Bombyliidae), 1935.)

This genus is based on an American species and was first established by Osten Sacken in 1877. Subsequently Becker and Paramonow referred certain European and Palaearctic species, originally described as species of *Systoechus* or *Bombylius*, to *Anastoechus*. Becker especially recapitulated a list of differences, based on Osten Sacken's definition, between *Systoechus* and *Anastoechus* (loc. cit., 1916). Wiedemann was the first to describe a South African species, which is referable to *Anastoechus* (*see* under *rubricosus* (Wied.)). Loew (p. 188, Dipt. Faun. Südafr., i, 1860) described a species *cervinus* as belonging to *Systoechus* and Bezzi subsequently described 10 species from the Ethiopian Region. Together with the new species described in this paper, there are at least 20 species of this genus known from Southern Africa and the Ethiopian Region. Whether the African species are strictly generically identical with the North American ones, on which the genus is based, is a point which can only be cleared up by a comparative study of representatives from not only America but the Palaearctic region as well. Authors, such as Loew and Becker, were at first not at all sure whether *Anastoechus* should be placed as a synonym of *Systoechus* or not. Becker (loc. cit., 1916) gave a list of differences between the two genera but also stated that these differences were not always constant in the Palaearctic forms at least. The African forms before me are sufficiently distinct in certain essentials that they may easily be separated from both *Bomby-*

lius and *Systoechus*. From *Bombylius* this genus may at once be separated by the position of the discal cross vein in the wing, which is very near base of discoidal cell, making the first basal cell equal in length to the second basal cell, by the broad and squat head, which across the eyes is comparatively broader, as broad or even broader than broadest part of thorax and which is rotundately rounded in front, by the very broad interocular space in many ♀♀ and by the presence of more conspicuous contrasting cretaceous white or chalky white, woolly or scale-like pubescence on body below and by the more conspicuous and longer bristles towards apical part of abdomen. The beaked apical joints of the hypopygium are also more constantly broad and leaf-shaped, their dorsum foveately hollowed out or depressed. If the wing character be not taken as an essential difference it is evident that there are species of *Bombylius* which cannot satisfactorily be separated from *Anastoechus* by the other characters alone. Under *Bombylius* I have provisionally placed two species *bezzii* and *anastoechoides* which in most of the characters agree with *Anastoechus*, but in the position of the discal cross vein they agree with some species of *Bombylius*. They may even be taken as species transitional between *Bombylius* and *Anastoechus*. Strictly speaking they should be included in *Anastoechus* but this would entail a modification of the generic character relating to the position of the discal cross vein which is constant in position in all the other known Ethiopian and Palaearctic species.

From the following genus *Systoechus*, the genus *Anastoechus* is more easily separated. Compared with *Systoechus* it differs in the following essentials:—The head is distinctly broader, at least as broad, or slightly broader than broadest part of thorax, with the interocular space in ♀♀ usually much broader relative to breadth of ocellar tubercle, with the frons in ♀♀ convex and without any transverse depression and without a distinct central furrow in ♂♂, these latter two characters have not been mentioned as differences by previous authors; legs with the claws more often almost straight or only feebly or slightly curved, rarely much curved and with the pulvilli in both sexes never extending beyond middle of claws, usually confined to base, but in some ♂♂ just falling short of middle of claws; wings with the discoidal cell usually broader and more truncate apically, the sides of the cell almost parallel, with the squamae more distinctly bilobed; pubescence on head below and on body below always markedly and contrastingly chalky or cretaceous white. *Hypopygium* of ♂♂ with the aedeagus never falcate or sickle-

shaped, its lower part not produced into a sharp keel and never with a stylet-like or rod-like process on each side below (*see* text-figs. 78–91).

Gen. *Systoechus* Lw.

(P. 34, Neue Beitr., iii, 1855; Becker, pp. 50 and 60, Ann. Mus. Nat. Hung., vol. xiv, pt. i, 1916; Bezzi, p. 36, Ann. S. Afr. Mus., vol. xviii, 1921 and p. 62, The Bombyliidae of the Ethiopian Region, 1924; Engel, p. 278, Die Fliegen. d. Pal. Reg. Lief., 87 (Bombyliidae), 1935.)

This genus differs from *Bombylius* chiefly in having the discal cross vein nearer base of discoidal cell so that the first basal cell is equal in length to the second basal cell in all the known species. In other characters it differs from *Bombylius* only relatively; the pubescence on body being relatively shorter, less shaggy or bushy, that on abdomen on the whole shorter and less shaggy or tuft-like, the transverse bristles less conspicuous and less developed; frons in ♀♀ always with a distinct transverse depression and in ♂♂ with a central furrow developed to a variable extent; claws on the whole more constantly curved down apically nearer apex and with the claws more constantly extending beyond middle in both sexes. From *Anastoechus* it is separated by the essentials given above and in the key. From both *Bombylius* and *Anastoechus* it differs by the entirely different type of aedeagus or structures associated with the aedeagus in the hypopygium of the ♂♂. These differences are very characteristic and very constant in the genus (*see* text-figs. 92–142). The aedeagus is either sickle-shaped and with a characteristic flattened keel below or the eadeagus is normal but has on each side a stylet-like, rod-like, clavate or even racket-shaped process projecting apically from a girdle-like or bridge-like basal part which is continuous on each side with the lateral ramus to each basal part. The beaked apical joints are usually elongate, narrowish, somewhat laterally compressed and not foveately depressed above. In the following key the species of both *Anastoechus* and *Systoechus* are dealt with under separate divisions in the same key, and to make certain that some variable species will be recognised they sometimes occur in different parts of the key. The characters of species of *Systoechus* are so uniform that even the best of keys are very unsatisfactory, and unless the couplets are practically descriptive it is almost impossible to separate species which are very constant and uniform in external characters.

The genus *Systoechus* in Southern Africa is remarkably rich in species, and some species, such as *xerophilus* n. sp., *acridophagus* n. sp. and *waltoni* n. sp., are of economical importance in that their larval stages feed on the eggs in the egg-packets of the Brown Trek-locust or Swarm-locust, *Locustana pardalina*, which has become a serious problem in this country.

Key to the S. African species of Anastoechus *and* Systoechus.

A. (B) Head across eyes markedly broad, at least as broad, or slightly broader than broadest part of thorax, with the interocular space in ♀♀ usually conspicuously broad, the frons in ♀♀ without a transverse depression or furrow and without a distinct central furrow in ♂♂; first terminal joint at apex of antennal joint 3 usually not visible, either minute or wanting; legs with the spines and spicules, especially on tibiae, entirely pallid or yellowish, with the claws more often almost straight, only feebly or slightly curved, rarely distinctly much sickle-shaped and with the pulvilli always short, either confined to base, basal third or fourth or in some ♂♂ just reaching middle of claws; pubescence on head below and body below markedly and contrastingly frosty or chalky white; proboscis without any distinctly visible spinules on labium below; wings with the discoidal cell very broad apically, truncate, the apical cross vein always long and usually longer than the discal cross vein and with the sides of the cell almost parallel; squamae more distinctly bilobed, the smaller lobe, nearest thorax, being often conspicuous and comparatively large; hypopygium of ♂♂ (text-figs. 78–91) with the beaked apical joints in many species very broad in basal two-thirds, leaf-shaped, the narrow and pointed beak being very rapidly narrowed from the broadened part, the dorsum of beaked joints foveately hollowed out or depressed, with the aedeagus never falcate and the lateral rami never produced anteriorly on each side of aedeagus into rod-like or stylet-like processes, but only with or without a ventral forwardly produced process at base below and continuous with the lateral part

(*Anastoechus* Ost. Sack.) (p. 347).

1. (36) Pubescence on body not very short, usually long and shaggy in appearance, often long, that on thorax longer, at least not with a very short closely cropped-off appearance, that on occiput, head above, antennal joints and face longer and distinctly more shaggy, more puff-like, not in form of broadish, short and scale-like hairs, and the bristly hairs and bristles on abdomen also longer and more recumbent; antennal joint 1 in ♂♂ distinctly longer, more than 2 or 2½ times as long as joint 2 and in ♀♀ usually more than 3 times as long as 2; face in front distinctly less conically produced, more rounded and always with longish hairs, bristly hairs or even stoutish bristles on face in front and often also on genae; proboscis usually shorter and not much longer than 5 mm.; wings with the vein between anal and axillary cells tending to be straighter for the greater part of its length, with the squamae smaller, less developed

and the fringe more conspicuous, consisting of longer hairs, as long as, or even much longer than, squamae . . . . . 2.

2. (23) Antennal joint 3 either club-shaped, the base being equally broadened, or rod-like, slender, or merely tapering to apex, not more rapidly narrowed below than above from the broad base to give it a characteristically curved or slightly humped appearance; pubescence on body markedly long and shaggy, that on occiput, frons, antennae and especially on face, sides of face and lower parts of genae shaggy and longish, with numerous long and often stout curved bristles on face in front and on genae and with long bristly hairs or distinct bristles on lower parts of genae, the hair on thorax above with a less obvious cropped-off appearance especially in ♂♂; hypopygium of ♂♂ (text-figs. 78–84) usually with the beaked apical joints broad in basal two-thirds, depressed or foveately depressed dorsally and not deeply sunk in between the outer apical and inner apical parts of neck region of basal parts . . . . . 3.

3. (6) Wings with more or less the anterior half pale yellowish brown to brownish yellow up to end, or slightly beyond apex, of marginal cell, with this infuscation extending posteriorly across base of second submarginal cell to include greater part of first posterior cell, extreme base of discoidal cell, into base of fourth posterior cell and basal half of anal cell; pubescence predominantly straw-coloured yellowish, creamy yellowish to golden yellow above, with the bristles on face, sides of face and lower parts of genae distinctly more numerous and those on lower parts of genae markedly developed and stout, with the bases of the brownish or purplish brown bristles on abdomen more extensively yellowish; antennal joint 1 and entire legs pale yellowish to pale reddish yellow, the sides of abdomen extensively and broadly, even the hind margins, red, even in ♀♀; interocular space in ♀♀ comparatively narrow, only about 3 times, or only very slightly more, as broad as ocellar tubercle; hind femora with more numerous and often irregularly disposed spines below . 4.

4. (5) Larger forms, about 6–14 mm., mostly golden yellow haired, the body less elongate; red on sides of abdomen and across hind margins more extensive and broader; wings vitreous hyaline in posterior half, with the lower apical part or half of first posterior cell and apical half of anal cell distinctly clear hyaline, without even a faint infuscation along apical stalk of first posterior cell and along vein between third and fourth posterior cells, and the apical part of fourth posterior cell is clear hyaline; legs with more spines, 7–19, on hind femora below; hypopygium with longer and denser hairs along dorsal apical part of basal parts

♂ ♀ *deserticolus* n. sp. (and forms of it) (p. 347).

5. (4) Smaller form, about 5½–7 mm., mostly whitish to pale yellowish haired above, the body more elongate; red on sides of abdomen and across hind margins more reduced, the red margins towards apex less conspicuous; wings darker, the posterior half distinctly more greyish or cinereous, with a faint infuscation along apical stalk of first posterior cell and along vein between third and fourth posterior cells, with the first posterior cell almost entirely infuscated and apical half of anal cell less clear, the infuscation at apical part of second basal cell, basal half

of fourth posterior cell and base of third posterior cell more diffused, almost the entire fourth posterior cell being tinged; legs with apparently fewer spines, 5–8, on hind femora below; hypopygium of ♂ with shorter and less dense hairs along dorsal apical part of basal parts

♂ ♀ *deserticolus* var. *coloratus* n. (p. 352).

6. (3) Wings not so infuscated, either entirely hyaline, vitreous hyaline or infuscated in basal half in ♂♂ or with a darker yellowish or yellowish basal and costal part not distinctly dimidiately marked off; pubescence either frosty or silvery white or sericeous yellowish above or appearing greyish due to an admixture of brownish bristles, with the bristles on face, sides of face, though also dense, slightly less numerous, those on lower parts of genae especially less conspicuous and stout, with the bristles on abdomen either entirely white or less extensively pale at their bases when dark; antennal joint 1 dark or black, rarely entirely pallid or yellowish and when so the hair on body is white; legs usually with the femora blackened or darkened towards bases or even entirely blackish and if not black then at least much darker than tibiae; abdomen entirely black in both sexes or with the red usually confined to sides above in ♂♂ or it may even be only obscurely visible apically; interocular space in ♀♀ broader, distinctly very much more than 3 times as broad as tubercle; hind femora with fewer spines below and these usually in a single row . . . . . 7.

7. (14) Pubescence entirely gleaming silvery white or frosty white, only the bristly hairs on ocellar tubercle, the bristles on frons being dark blackish brown or deep yellowish, all the bristles on body being silvery whitish; scutellum entirely black or at least obscure brownish and not distinctly ferruginous reddish; wings either hyaline and with a milky whitish tint or when with darker basal half then at least with the rest more hyaline . . 8.

8. (13) Antennal joint 1 longer, more than 3 or 4 times as long as joint 2 and with joint 3 subequal to joints 1 and 2 combined and not tending to be distinctly broadened just before middle; squamae dark or black-bordered and halteres rarely with yellowish knobs; abdomen in both sexes entirely black or dark above; interocular space in ♀♀, in relation to tubercle, about 4–4½ times as broad as tubercle; bristly hairs and bristles on face in front longer, more conspicuous and more shaggy; hind femora usually with more than 5 spines below and these nearer together . . 9.

9. (12) Interocular space in ♂♂ very much narrower, much less than 2 times as broad as ocellar tubercle, in ♀♀ quite 4½ times as broad as tubercle; wings in ♂♂, as in ♀♀, entirely hyaline, only the costal cell, base and first basal cell subopaquely whitish . . . . . 10.

10. (11) Body above entirely black; antennal joints 1 and 2 blackish or at least very dark blackish brown; frons and face black; wings with the veins dark brownish to blackish brown; legs with the femora blackened to near apices; interocular space in ♂♂ only very slightly broader than ocellar tubercle; halteres dark brown and with dark knobs; face in ♂♂, from in front, apparently narrower; hypopygium of ♂ (text-fig. 79, *a*) . . . . . ♂ ♀ *argyrocomus* n. sp. (p. 353).

11. (10) Body above dark brownish; antennal joints 1 and 2 yellowish, the third black but tipped brownish; frons and face, scutellum and pleural parts

more reddish brown; wings with the veins more yellowish; legs with the upper surfaces of the femora brownish; interocular space in ♂ about 1½ times as broad as tubercle; halteres yellowish, with ivory whitish knobs; face from in front much broader . ♂ *nitens* n. sp. (p. 355).

12. (9) Interocular space in ♂♂ remarkably broad, at least 2 times as broad as broadish tubercle, in ♀♀ only about, or nearly, 4 times as broad as tubercle; wings in ♂♂ with a broadish brownish or smoky brownish band across basal halves of marginal, first submarginal, first posterior, discoidal and fourth posterior cells, the base of wings being more subopaquely pale yellowish white, in ♀♀ hyaline, but with the costal cell, base and first basal cell slightly pale yellowish white; hypopygium of ♂ (text-fig. 80) . . . . . ♂ ♀ *pruinosus* n. sp. (p. 356).

13. (8) Antennal joint 1 much shorter, only a little more than 3 times as long as joint 2 and 3, distinctly much longer than 1 and 2 combined and tending to be broadest just before middle; squamae yellow-bordered and halteres with very pale yellowish knobs; abdomen in ♀♀ usually with the hind margins of last 2 tergites pallid or reddish; interocular space, in relation to tubercle, nearly or quite 5 times as broad as tubercle; bristly hairs and bristles on face in front shorter and less shaggily conspicuous; hind femora usually with only about 4 or 5 separated spines below ♀ *leucosoma* Bezz. (p. 357).

14. (7) Pubescence not entirely gleaming silvery whitish above, some or numerous dark-tipped, blackish brown or purplish brown or black bristles being present above, on head above as well as transversely across hind margins of abdomen and even also on thorax; scutellum usually with some red even if only discally . . . . . 15.

15. (22) Pubescence with the bristles on occiput, some on antennal joint 1, intermixed ones on thorax in front, sides of thorax, on scutellum and those very densely and conspicuously across hind margins of tergites conspicuously dark, blackish brown or purplish black, with the pubescence on face distinctly more shaggy and with conspicuous bristles on face and genae; wings distinctly tinged, even if only slightly, subopaquely greyish mauvish, mauvish brownish and more so in costal and basal parts in ♂♂, or wings may have a dark infuscation in basal half in ♂♂ and there may even be indications of spot-like infuscations on cross veins, with the basal comb dark and veins very dark; pulvilli in ♂♂ longer, at least reaching middle of claws . . . . . 16.

16. (19) Interocular space in ♂♂ broader, at least 1½ times as broad as ocellar tubercle, in ♀♀ about 4 times as broad as tubercle; antennal joint 3 gradually tapering and not truncated sucker-like at apex; wings in both sexes distinctly tinged mauvish or smoky mauvish, becoming darker and more reddish brown or brownish towards base and costal margin, especially in ♂♂, without any distinct indications of spot-like infuscations on cross veins; pubescence above without any or with much fewer dark purplish brown-tipped hairs on thorax, scutellum and transversely behind the dark transverse bristles on abdomen and with the chalky white flattened scaling on abdomen absent or less evident; hypopygium of ♂♂ (text-figs. 81 and 82) sometimes with long tuft-like hairs on dorsal margins of inner apical parts of basal parts . . . . . 17.

17. (18) Sides of abdomen less broadly or conspicuously reddish in ♂♂; pubescence above more gleaming silvery whitish; wings with the darker basal and costal parts more distinctly reddish brown and the veins more reddish . . . . . ♂ ♀ *erinaceus* Bezz. (p. 358).

18. (17) Sides of abdomen more broadly and more conspicuously reddish in ♂♂; pubescence above gleaming distinctly more sericeous yellowish to golden yellowish; wings with the darker basal part more brownish, the reddish mauve tinge less conspicuous and the veins distinctly darker, more blackish brown . . . . . ♂ ♀ *flavosericatus* n. sp. (p. 359).

19. (16) Interocular space in ♂♂ narrower, only about as broad as tubercle, in ♀♀ remarkably broad, about 6–7 times as broad as tubercle, the head thus very broad, as broad as, or even broader than, thorax; antennal joint 3 more slender and rod-like, truncated and sucker-like at apex; wings in ♂♂ with the basal half dark brownish across to fourth posterior cell, the basal part, however, being more yellowish, in ♀♀ subopaquely slightly greyish or cinereous, with faint spot-like infuscations indicated on cross veins; pubescence with numerous and conspicuous dark or purplish-tipped bristly hairs on front part of thorax, disc of thorax, on scutellum and transversely across tergites just behind transverse dark bristles on abdomen and with the chalky white flattened scaling on abdomen above and sides dense and conspicuous, more or less arranged transversely; hypopygium of ♂ (text-fig. 83) without such a tuft of very long hairs on dorsal inner margin of neck region of basal parts . . . . . 20.

20. (21) Pubescence with pale brownish golden or dark brownish-tipped, transverse hairs on practically all the tergites just behind the transverse blackish bristles, with these transverse bristles longer and very dark on all the segments but distinctly darker towards apex; scutellum entirely black or at least very dark and abdomen also entirely dark or black; wings in ♂ brownish up to end of costal cell and across to base of third posterior cell, the basal parts, however, more yellowish across first and second basal cells and in costal cell, in ♀ tinged cinereous but darker and more yellowish in basal part, costal cell, base and in first basal cell and with the spot-like infuscations on cross veins sometimes very distinct, with the basal comb in both sexes dark brownish; halteres with whitish knobs; interocular space in ♀ a little more than 6 times as broad as tubercle; hind femora with about 5–8 spines below
♂ ♀ *macrophthalmus* Bezz. (p. 361).

21. (20) Pubescence with the pale yellowish brown to fulvous hairs less extensively developed, more evident transversely across tergites 2, 5, and 6 especially on sides, with the transverse bristles on abdomen apparently very dark only posteriorly and laterally from tergites 3–5, the apical ones paler again; scutellum distinctly ferruginous red on disc and the extreme sides of abdomen towards apex obscurely reddish; wings in ♀ apparently more greyish, tinged slightly yellowish only at base and in costal part and in first basal cell, with the basal comb more yellowish; halteres with the knobs more pale reddish brown; interocular space at least 7 times as broad as tubercle; hind femora with only about 4 spines below
♀ *eurystephus* n. sp. (p. 364).

22. (15) Pubescence with the bristles on body above predominantly very pale creamy yellowish, only the bristles on head above dark and some intermixed transverse bristles towards apex of abdomen dark-tipped, the latter distinctly less numerous, with the pubescence on face denser, more woolly, especially in ♂, the bristly hairs and bristles on face and genae poorly developed; wings not dark, but subopaquely greyish hyaline in both sexes and also having a slight milky tint in certain lights, with the base and costal parts subopaquely whitish or very pale yellowish white, the basal comb very pale yellowish, the veins pale yellowish red and without any indications of spot-like infuscations on cross veins; pulvilli short and confined to base in both sexes; hypopygium of ♂ (text-fig. 84) . . . . . ♂ ♀ *innocuus* Bezz. (p. 365).
23. (2) Antennal joint 3 thickened at base (from side), with the base more broadened below and the lower margin more distinctly and characteristically rapidly narrowed towards apex from this broad part, the dorsal margin thus appearing humped, the joint not distinctly rod-like; pubescence less shaggy in appearance, shorter, that on face especially, on sides of face and genae shorter, denser, and distinctly more woolly, the bristles and bristly hairs on face and genae short and inconspicuous, the hair on thorax above, especially in ♂♂, with a more distinct cropped-off appearance; hypopygium of ♂♂ (text-figs. 85–89) usually with the beaked apical joints narrower and more slender, not or scarcely depressed above and usually deeply sunk in between the apical inner and outer parts of basal parts . . . . . 24.
24. (31) Pulvilli in both sexes confined to base of claws; interocular space in ♀♀ at least 4½–5 times as broad as ocellar tubercle; wings in both sexes with a distinct subopacity, either greyish, yellowish to faint yellowish brownish and in ♂♂ without a more or less well marked off yellowish brown or yellowish basal half; pubescence in both sexes always with some, even if only a few, darkish, blackish brown or purplish black tipped transverse bristles on abdomen . . . . . 25.
25. (26) Legs with the femora blackened to beyond middle and hind ones almost entirely black; antennal joint 3 more slender, almost rod-like, only a little thickened basally, scarcely very distinctly more rapidly narrowed along lower margin; wings more subopaquely greyish hyaline and with a more whitish tint, with the basal comb whitish; pubescence above predominantly very pale creamy whitish or yellowish and with the bristles on face in front slightly more developed and longer, more evident; red on sides of abdomen on the whole less developed even in ♂♂ ♂ ♀ *innocuus* Bezz. (p. 365).
26. (25) Legs entirely yellowish; antennal joint 3 distinctly more broadened towards base, broader below and from there distinctly more rapidly narrowed apically along lower margin; wings distinctly subopaquely yellowish to yellowish brownish, with even a faint mauvish tinge, the basal comb having darker spines; pubescence on body above distinctly more yellowish, ranging from creamy yellowish to sericeous yellowish and even deep golden yellowish and with the bristly elements on face in front inconspicuous and shorter, the pubescence on facial part being characteristically more woolly and denser even in ♀♀; red on sides of

abdomen in both sexes more extensively developed and even very extensive . . . . . 27.

27. (30) Wings subopaquely yellowish to pale yellowish brown, having a feeble mauvish tinge, with the veins not appearing very dark or conspicuous against the background; pubescence slightly more yellowish and even deep golden yellowish . . . . . 28.

28. (29) Red on sides of abdomen less extensive; pubescence with fewer, or only a few, dark-tipped transverse bristles across abdomen in ♂♂; interocular space in ♂♂ tending to be a little broader than ocellar tubercle; interocular space in ♀♀ tending to be slightly narrower, about 4½ times as broad as tubercle . . . . ♂ ♀ *phaleratus* n. sp. (p. 366).

29. (28) Red on sides of abdomen more extensive and sometimes very much developed; pubescence in both sexes with more numerous transverse dark or blackish-tipped bristles on abdomen; interocular space in ♂♂ tending to be only as broad as tubercle; interocular space in ♀♀ apparently slightly broader, at least 5 times as broad as tubercle

♂ ♀ *phaleratus* n. sp. (p. 368).
(Forms of it.)

30. (27) Wings apparently more distinctly subopaquely yellowish, the yellowish in costal part and base more evident, with the veins appearing very dark and conspicuous against the background, due to slight pale yellowish brownish infuscations along their course, especially at the middle; pubescence more uniformly creamy yellow above

♂ *phaleratus* var. *albicerus* n. (p. 368).

31. (24) Pulvilli at least reaching middle of claws in ♂♂ and even in ♀♀ more evident at base and even in some ♀♀ also extending to near or to middle of claws; interocular space in ♀♀ slightly narrower or very much narrower, only about 3–4 times as broad as tubercle; wings in ♀♀ clearer and more hyaline, only the costal and basal parts yellowish or pale yellowish brown, in known ♂♂ hyaline, but with a well marked off yellowish brown to brownish basal half, the base of which is yellowish; pubescence in both sexes without any black or dark transverse bristles on abdomen . 32.

32. (35) Legs with the femora distinctly blackened to beyond or much beyond middle; pubescence above paler, predominantly whitish, gleaming sericeous whitish and only very feebly pale sericeous yellowish on disc of thorax; interocular space in ♀ broader, a little more than 4 times as broad as ocellar tubercle; scutellum with the red much reduced or even obscure as two maculae . . . . . 33.

33. (34) Pubescence on body above almost entirely sericeous whitish; wings with the basal half in ♂ slightly darker and more brownish; antennal joint 1 scarcely 3 times as long as joint 2 in ♂ and about 3 times as long as 2 in ♀ and with joint 3 slightly longer . . ♂ ♀ *sericophorus* n. sp. (p. 370).

34. (33) Pubescence above tending to be slightly pale sericeous yellowish on disc of thorax at least; wings with the basal half in ♂ slightly paler and more yellowish and even faintly yellowish; antennal joint 1 quite 3 times as long as 2 in ♂ and with joint 3 apparently slightly shorter

♂ *sericophorus* var. *congruens* n. (p. 371).

35. (32) Legs predominantly yellowish and if femora are darkened then only very obscurely at extreme bases; pubescence above distinctly more yellowish,

sericeous yellowish to golden yellowish; interocular space in ♀ narrower, only a little more than 3 times as broad as tubercle; scutellum more distinctly reddish on hind half . . . ♀ *dolosus* n. sp. (p. 372).

36. (1) Pubescence on body above markedly short, fine, with a very distinct closely cropped or shorn-off appearance, especially on the thorax above in both sexes, that on occiput, head above, antennal joint 1 and on face very short in ♂♂ and in ♀♀ also short and not shaggy, not puff-like, that on sides of face, face in front and on genae in form of dense, closely packed or superimposed, short, broadish, flattened, scale-like, predominantly cretaceous white hairs, that on abdomen above also shorter, denser and more velvety or matted in appearance, the transverse bristles being comparatively shorter, denser, and stouter in both sexes; antennal joint 1 in ♂♂ distinctly shorter, only about 2½ times, or even distinctly less, as long as joint 2 and in ♀♀ also shorter and 3, or less, times as long as 2; face in front distinctly more conically produced and prominent, bearing some short, stoutish, curved bristles in ♀♀, less distinct in ♂♂, the lower parts of genae without any long bristly hairs or bristles; proboscis usually longer and more than 5 mm. long; wings with a tendency for vein between anal and axillary cells to be more undulating, with the squamae comparatively large, being broad and well developed, its fringe being much denser and very much shorter than the squamae . 37.

37. (40) Interocular space in ♂♂ very narrow, at narrowest part very much narrower than length of antennal joint 1; eyes with the upper facets in ♂♂ very coarse and eyes very large; interocular space in ♀♀ very broad, very considerably broader than 2 times as long as antennal joints 1 and 2 combined; wings with the uninfuscated parts hyaline or only very feebly greyish, with the infuscated basal half more demarcated and the darker middle band in ♂♂ more evident; transverse rows of bristles across hind margins of abdomen in ♂♂ whitish or pale yellowish and the transverse rows of hairs behind them of the same colour as the rest of the hair, with the bristles in ♀♀ either whitish or reddish brown, slightly shorter and less conspicuous, with the transverse hairs behind them whitish or very pale yellowish, scarcely tipped darker and also less evident . . . . . 38.

38. (39) Pubescence on body above paler, more whitish, with that on thorax above whitish, that on abdomen above distinctly more whitish and not so yellowish, with the bristles on thorax, scutellum and across hind margins of abdomen whitish to pale yellowish white in both sexes and if darkened on abdomen in some ♀♀ without dark-tipped hairs behind them; antennal joint 1 dark or blackish; hind margins and sides of abdomen in ♀♀ less extensively red; femora with the extreme bases and more or less the upper surface of the hind ones blackened; interocular space in ♂♂ narrow, at narrowest part about as broad as front part of ocellar tubercle, with the upper facets of eyes very coarse; wings in ♂♂ apparently more hyaline, with the infuscated part paler and less evident, the costal cell, base, first and second basal cells, greater part of anal cell and alula almost subopaquely whitish, with the wing almost entirely hyaline in ♀♀, the infuscation only faintly indicated along front margin . . . . . ♂ ♀ *leucochroicus* n. sp. (p. 373).

39. (38) Pubescence above more yellowish to golden, that on thorax and occiput ochreous yellow to brownish golden, that on abdomen above more creamy yellow to yellow, with the bristles on thorax and scutellum yellowish in ♂♂, reddish yellow to brownish in ♀♀, the transverse bristles on abdomen in ♀♀ dark brownish black or dark reddish brown and with yellowish bases, with the transverse hairs behind them distinctly yellowish to fulvous; antennal joint 1 yellow; hind margins and sides of abdomen in ♀♀ more broadly red; femora entirely pale ochreous yellow in both sexes; interocular space in ♂♂ broader, 2 times as broad, about as broad as ocellar tubercle posteriorly, with the upper facets of eyes distinctly less coarse; wings in ♂♂ with the infuscated part darker, broader, more brownish and the costal and basal parts more distinctly subopaquely yellowish, with the brownish tinged front part in ♀♀ also more distinct

♂ ♀ *varipecten* Bezz. (p. 376).

40. (37) Interocular space in ♂♂ broader, at narrowest part at least subequal to or even longer than length of antennal joint 1; eyes with the upper facets in ♂♂ only very slightly coarser than lower ones and eyes also smaller; interocular space in ♀♀ comparatively narrower, not much more than 2 times as long as antennal joints 1 and 2 combined; wings with the uninfuscated parts also distinctly tinged more subopaquely greyish, with the infuscated basal half more distinctly merging into rest of wing and with the darker middle part in ♂♂ scarcely evident; transverse bristles on abdomen in ♂♂ as in ♀♀ dark reddish brown or blackish brown and with the transverse hairs behind them distinctly yellowish or fulvous and tipped brownish and with these bands of hair and bristles long and more conspicuous . . . . . 41.

41. (42) Pubescence above more ochreous yellow and that on abdomen above distinctly more yellowish, that on body below duller greyish white, with the mesopleural and metapleural bristles and metapleural tuft straw-coloured or creamy yellowish, with the hair and bristles on sides of frons anteriorly, on antennae below and face in front yellowish to ochreous, with the transverse bristles on abdomen above practically only with their apices or apical parts reddish brown or brownish, also shorter and less dense, with the transverse hair behind these less dense and yellowish brown; antennal joint 1 reddish brown in ♀♀ at least; reddish hind margins of abdomen in ♀♀ narrower; wings distinctly duller and more tinged with greyish, with the brownish infuscated part almost imperceptibly merging into greyish apical part, with the basal comb yellowish to pale yellowish brown; hind femora with about 9–12 spines below; hypopygium of ♂ with the basal strut slightly longer and projecting much beyond bases of basal parts, with the ventral basal process below aedeagus more slender and less produced apically

♂ ♀ *rubricosus* (Wied.) (p. 378).
(Syn. = *cervinus* Lw.)

42. (41) Pubescence above more yellowish and that on abdomen distinctly more whitish or white, that on body below more frosty or chalky white, with the mesopleural and metapleural bristles and the metapleural tuft pure white, with the hair and bristles on sides of frons in front, on antennae below and face in front entirely pure white, with the transverse bristles

on abdomen almost entirely purplish black and also longer and more conspicuous, with the transverse rows of hairs behind these denser and much darker brownish, their tips even darker; antennal joint 1 much darker in ♀♀; reddish hind margins of abdomen in ♀♀ broader and also broader on sides; wings more hyaline and only slightly tinged greyish, with the brownish infuscated basal half more distinctly marked off from the apical hyaline part, with the basal comb purplish black to black; hind femora with about 5–9 spines below; hypopygium of ♂ with the basal strut shorter, only slightly projecting posteriorly, with the ventral basal process below aedeagus broader and more produced apically

♂ ♀ *fuscianulatus* n. sp. (p. 380).

B. (A) Head across eyes usually less markedly broad, more often narrower than broadest part of thorax, with the interocular space in ♀♀ in majority of species distinctly much narrower, the frons in ♀♀ always with a distinct transverse depression or furrow and in ♂♂ almost always with a central furrow even if only indicated posteriorly; first terminal joint at apex of antennal joint 3 almost always distinct and often comparatively long; legs with the spines, especially on tibiae, not always pallid or yellowish, with the claws almost always sickle-shaped, either rapidly curved downwards from about middle or more gradually, rarely very slightly curved downwards, with the pulvilli usually long in both sexes, extending much beyond middle of claws and more often reaching the bent apices; pubescence on head below, face, pectoral and pleural regions rarely markedly contrasting frosty or cretaceous white; proboscis always with spinules below on labium, sometimes very distinctly visible but often just visible; wings with the discoidal cell, on the whole, distinctly more acute apically, with the apical cross vein usually shorter than discal cross vein and, even if equal or subequal to it, the sides of the cell are, in by far the greater number of species, more converging towards apex; squamae distinctly less bilobed, often scarcely bilobed, the smaller lobe being very small and insignificant, often being only indicated; hypopygium of ♂♂ with the beaked apical joints never markedly broadened basally, not leaf-shaped, more elongate and narrow, without any or with only a very feeble and shallow depression above, more gradually narrowed and attenuated apically, with the aedeagus either falcate (cf. text-figs. 92–142), its ventral part being produced into a thin, lamellate, flattened, keel-like process and the anterior parts of the lateral ramus from basal parts simply fused to base of aedeagus to form a sort of ridge or girdle, or the aedeagus is not falcate but with a movable, stylet-like, clavate, rod-like or racket-shaped process formed as a continuation of the ramus on each side from the basal parts in addition to the girdle-like or arch-like ridge across base through which the penis proper passes

(*Systoechus* Lw.) (p. 382).

1. (74) All or the majority of the spines or spicules below in the lower outer row on front and middle tibiae, or at least on the front ones, and also the lower long and short apical spurs or spines on front and middle tibiae as well as the spines behind on middle femora, dark or black like rest of the spines on legs; pallid spines, when present on front tibiae, are minute, inconspicuous and present on lower inner row only . . . . 2.

2. (7) Claws only gradually or more gradually curved, with the pulvilli in both sexes shorter, not reaching or just falling short of middle of claws; head with the eyes in ♂♂ more broadly separated on vertex and quite 1½ times as broad as ocellar tubercle, with the proboscis usually long and even reaching 13 mm., its labial part below with very dense, conspicuous and relatively long spinules, giving it a coarse and scabrous appearance, those towards base being denser and more conspicuous and this basal part itself more conspicuously transversely wrinkled or ridged; pubescence either entirely velvety black or very dark velvety blackish brown or when not there are 2 broad vertical bands of gleaming fulvous brown pubescence separating a very characteristic broad band of silvery whitish hair, from below base of wing to between front and middle coxae, and another band of silvery white hair at base of venter and tergite 1 and another anteriorly, extending from below head and propleural parts to behind eyes; hypopygium of ♂♂ with dense and conspicuous, stoutish, bristly hairs on apical two-thirds of basal parts; large and bulky species, about 13–16½ mm. long and with a wing-length of about 14–16 mm. 3.
3. (6) Pubescence on body above and below entirely deep velvety black or very dark and deep velvety blackish brown; wings tinged smoky blackish, becoming very dark sooty black or coal black in front half, the veins black, with the squamae darker, very dark blackish brown or blackish and the halteres blackish, only the cups pale or whitish; legs entirely black or dark and with very dark blackish brown or coal black scaling; proboscis slightly shorter, 7–10 mm. long and with the spinules below tending to be slightly less coarse; face, head below, pleural parts and in ♂♂ sides of abdomen darker and more dark brownish or obscurely blackish brown; hypopygium of ♂ (text-fig. 92) without a conspicuous ridge on side of each basal part and with the mane or crest of shortish, bristly hairs on apical two-thirds of basal parts shorter and less conspicuous, with the beaked apical joints shorter and less slender and with a distinct and long rod-like process on each side below aedeagus from the ramus on each side . . . . . 4.
4. (5) Pubescence distinctly more deep velvety black or entirely velvety black; wings with the anterior and basal darker part slightly more extensive; legs with the scaling more coal black . ♂ ♀ *fuligineus* Lw. (p. 382). (Western Province form.)
5. (4) Pubescence distinctly more deep velvety blackish brown; wings with the anterior and basal darker part slightly less extensive; legs with the scaling tending to be more blackish brown ♂ ♀ *fuligineus* Lw. (p. 383). (Karoo and O.F.S. form.)
6. (3) Pubescence on body above in ♂♂ predominantly gleaming greyish sericeous, appearing more velvety sericeous whitish on abdomen above, that on thorax with whitish gleaming longitudinal stripes, that on thorax in ♀♀ brownish golden or fulvous, separated by 4 more sericeous whitish stripes, that across base of thorax and on occiput also gleaming greyish sericeous, that on abdomen above in ♀♀ with fulvous or brownish golden tints, but with more greyish or whitish sericeous gleams on sides of the tergites, that on head in front gleaming pale greyish sericeous, the bristly elements reddish golden to brownish, the pubescence on body below very char-

acteristic, in form of 2 broadish perpendicular bands of brownish golden or fulvous pubescence separating the contrasting silvery whitish hair on head below, propectus and behind eyes from a broad perpendicular band of very conspicuous silvery pubescence extending down from below base of wings to pectus between front and middle coxae, and from the silvery white pubescence at base of venter and on tergite 1, with the bristles on thorax in front of wings reddish, those on post-alar calli more whitish to very pale reddish yellow, those on abdomen reddish brown in ♀♀ and reddish brown on sides in ♂♂, pubescence on venter fulvous or brownish golden, more so in ♂♂; wings tinged reddish or greyish, the front half darker and more subopaquely reddish brown, the veins reddish brown to brownish, the squamae opaquely reddish brown and the halteres with more yellowish or pale yellowish brown knobs; legs pale reddish brown, the scaling greyish or greyish yellow; proboscis slightly longer, about 11–13 mm. and with the spinules below more conspicuous and relatively coarser; face, head below, pleural parts and in ♂♂ sides of abdomen paler and more reddish yellow; hypopygium of ♂ (text-fig. 93) with a very conspicuous ridge on each side of each basal part and with the mane or crest of spines on apical two-thirds of basal parts longer, denser and more conspicuous, with the beaked apical joints longer and more slender and without any process on side of aedeagus

♂ ♀ *scabrirostris* Bezz. (p. 384).

7. (2) Claws more rapidly bent down nearer apex, with the pulvilli longer in both sexes, reaching, or extending beyond, middle of claws; head with the eyes in ♂♂ above either in subcontact, very narrowly separated or if broadly separated the space is scarcely broader than ocellar tubercle, with the proboscis usually shorter and if very long not spinulated to the same extent below, the spinules, when present, less conspicuous and sometimes scarcely visible; pubescence not entirely velvety black above and below and without a very characteristic perpendicular band of silvery white hair on pleurae, which is marked off on each side by a band of fulvous or golden brown hair from the other silvery white hair on head below and base of venter, the pubescence on pleurae being uniformly whitish, yellowish or golden, its whitish elements not vertically well marked off by brownish golden hair; hypopygium of ♂♂ without a very conspicuous and dense mane or crest of shortish or long bristly hairs on basal parts, with either a sharp, ventral keel to aedeagus or with a stylet-like, rod-like or clavate process on each side; smaller and less bulky species, and if very large and bulky the claws are more rapidly curved down apically and the eyes are more narrowly separated . . 8.

8. (53) Scutellum predominantly red or ferruginous red, or at least with distinct and extensive red on disc; face, especially in ♂♂, usually more conically prominent and with the pubescence usually less dense, shorter and more often sparse in both sexes; sides of abdomen in ♂♂ rarely entirely black and if black scutellum is red; face yellowish, reddish or brownish, rarely black . . . . . 9.

9. (40) Face and genae predominantly pallid, yellowish or reddish brownish and to a certain extent head below anteriorly is similarly coloured; sides of abdomen in ♂♂ more extensively and broader reddish or reddened . 10.

10. (17) Antennal joint 3 more distinctly club-shaped, its apical half or more slender and attenuated, comparatively rapidly narrowed from the broadest part in basal half or near base, the joint relatively longer, its length to 1 and 2 combined 4 : 3 or 5 : 4 or even more, ending apically in an inconspicuous, scarcely visible, basal element bearing the style 11.

11. (14) Large and bulky species, about 13–17 mm. long and with a wing-length of about 16–19 mm.; wings, though tinged cinereous or greyish hyaline, on the whole less dark, the anterior yellowish brownish, brownish or reddish brownish infuscation less extensive, less dark, with the second basal cell, the greater part or entire discoidal cell in both sexes clearer and more hyaline or greyish hyaline like rest of hinder part of wing; head with the proboscis very much longer than 6 mm., with the face longer and longer than combined length of antennal joints 1 and 2; pubescence on body predominantly paler, gleaming greyish sericeous or golden yellowish to deep golden, that on sides of abdomen in basal half even in ♀♀ not deep fulvous brownish or brownish, with the transverse bristles across hind margins of tergites 1–4 not blackish brown or darkened and if a few dark ones are present in ♂♂ they are on extreme sides, pubescence on body below, along pleurae and basal part of venter on each side with more whitish or pale elements, that on disc of thorax tending to show longitudinal stripes of paler gleaming elements; legs darker, predominantly blackish or very dark blackish brown . . . . . 12.

12. (13) Pubescence on body paler, very pale greyish white, creamy yellowish, gleaming more sericeous whitish especially on abdomen in ♂♂, that towards apex and on sides even in ♀♀ sericeous whitish, that along middle parts of pleurae, on metapleural tuft, on squamae and sides of venter more extensively and more conspicuously whitish, that on disc of thorax in ♂♂ especially shorter and with a more shorn-off appearance, the bristles on thorax, scutellum and on abdomen whitish in ♂♂ and whitish to very pale sericeous yellowish in ♀♀ and sometimes with a few darkish ones on sides of abdomen in some ♂♂, the bristly elements on antennal joint 1 predominantly whitish or pale yellowish; interocular space on vertex in ♂♂ comparatively narrower, as broad as ocellar tubercle; wings with the dark yellowish brown or brownish anterior infuscation slightly less extensive and more marked off, the apices of wings in ♂♂ more pointed; hypopygium of ♂ (text-fig. 94)
♂ ♀ *bechuanus* Hesse (p. 387).

13. (12) Pubescence on body gleaming golden yellow to deep golden yellow, that on abdomen in both sexes golden yellowish, though more brassy yellowish in ♂♂ without any sericeous whitish gleams, that on pleurae, in metapleural tuft, on squamae and sides of venter with more yellowish hair, that on coxae more yellowish or golden, that on sides of abdomen in ♀♀ especially deeper golden, that on disc of thorax, though also short, distinctly with a less closely cropped appearance, the bristles on thorax, scutellum and on abdomen golden yellowish to deep golden, the bristly elements on antennal joint 1 predominantly black; interocular space in ♂♂ slightly broader and slightly broader than tubercle; wings with the

more reddish brown anterior infuscation slightly more diffuse, the apices of wings in ♂♂ less pointed; hypopygium of ♂ (cf. text-fig. 94)
♂ ♀ *goliath* Bezz. (p. 390).

14. (11) Smaller and less bulky species, only about 8–13 mm. long and with a wing-length of about 9–13 mm.; wings distinctly darker, more deeply tinged mauvish or reddish brown, much darker in the anterior half, this anterior darker part more extensive, the second basal cell and the basal and upper parts of discoidal cell also included in darker part; head with the proboscis not longer than 6 mm. and even shorter, with the face distinctly shorter and only about, scarcely longer or even shorter than combined length of antennal joints 1 and 2; pubescence predominantly deep velvety reddish brown or fulvous brown to chocolate brownish and, when paler towards apical part of abdomen, gleaming deeper golden or more brownish golden, that on sides of abdomen in basal half, especially in ♀♀, deep fulvous brownish, with the transverse bristles on at least tergites 1–4 darker reddish brown to chocolate brownish, especially on sides and with the bristly elements on frons, thorax and scutellum also similarly coloured, the pubescence on body below predominantly rufous or deep golden brownish, only the squamal fringe, the upper part of metapleural tuft, that on head below and on sides of venter basally gleaming more pale sericeous in certain lights, that on disc of thorax not with very pale sericeous bands; legs pale reddish brownish to brownish . . 15.

15. (16) Pubescence slightly paler, more yellowish brown, that on thorax in front more yellowish in certain lights, that towards apex of abdomen in both sexes distinctly paler and even in ♀♀ gleaming more yellowish, that in squamal fringe and upper parts of metapleural tuft gleaming almost whitish sericeous in certain lights, that on sides of venter basally with some pale, almost whitish sericeous elements, with the bristly elements on body paler, more yellowish brownish or reddish brownish, with only the transverse bristles across tergites 1–4 dark; legs paler and more pale reddish brownish or yellowish red; wings with the darker mauvish or brown anterior half more marked off; antennae with joint 2 more elongate and distinctly longer than broad, with joint 1 thus relatively shorter and only about 2 times as long as 2, with 3 relatively longer, distinctly more slender and longer in apical part . . ♂ ♀ *kalaharicus* Hesse (p. 392).

16. (15) Pubescence on entire body distinctly darker brownish, dark chocolate brownish, only that on occiput in certain lights more yellowish, that on abdomen darker and more chocolate brownish even on sides and apically there being no pale hair apically, that on pleurae scarcely paler, being coffee brownish, that in squamal fringe and metapleural tuft and base of venter distinctly darker and brownish, not gleaming almost sericeous whitish, with the bristly elements on head, thorax and scutellum darker and more chocolate brownish and with all the bristles across hind margins of all the tergites very dark chocolate brown, moreover the pubescence on abdomen is apparently slightly shorter; legs darker, entirely chocolate brownish; wings apparently more uniformly tinted mauvish brownish, the darker front part more imperceptibly passing into less tinged part; antennae with joint 2 slightly shorter and only a little broader than long, with joint 1 also relatively a little longer and slightly more than 2 times

as long as 2, with 3 relatively shorter, the apical part less slender and shorter . . . . . ♀ *namaquensis* n. sp. (p. 394).
(Syn. =*fuligineus* Bezz. nec Lw.)

17. (10) Antennal joint 3 less distinctly club-shaped, with less than its apical half slender and there distinctly less slender, usually more gradually narrowed from broadened basal part, the joint usually relatively shorter, being subequal to 1 and 2 combined or if longer only a little longer and if much longer the apical slender part is shorter and thicker, ending apically in a more distinctly visible or more conspicuous terminal element bearing a style . . . . . 18.

18. (25) Wings distinctly more darkly and more uniformly tinged mauvish brownish or reddish brownish throughout, the basal part up to end of costal cell and across to ends of basal cells darker brownish or mauvish brownish, this darker part distinctly more diffuse and not well marked off from the less infuscated part; pubescence above, especially in ♀♀, with more brownish or brownish golden hair or at least with yellowish brown hairs on disc of thorax and abdomen and if not, wings at least are more uniformly tinged . . . . . 19.

19. (20) Larger species, about 9–11 mm. long, with a wing-length of about 10–11 mm.; antennal joint 3 distinctly club-shaped, dilated or knob-like basally, more than apical half slender, ending apically in a longish terminal basal element bearing the style; pubescence tending to be pale in both sexes, that in ♂♂ predominantly gleaming silvery to greyish white above, that in ♀♀ on disc of thorax slightly tinted yellowish, the fine pubescence on abdomen in ♀♀ gleaming sericeous or greyish whitish, that on body below predominantly whitish in both sexes, that on sides of thorax in front of wings ochreous brownish, that towards apex of venter in ♂♂ also ochreous brownish, the bristly elements on frons, face, sides of thorax and transversely on all the tergites and on coxae in both sexes dark reddish brown to brownish; legs dark or blackish brown, with dense greyish white hair-like scaling . . ♂ ♀ *fumitinctus* n. sp. (p. 442).
(Slight var. of it.)

20. (19) Smaller forms, usually less than 9 mm. long and with a wing-length of less than 10 mm.; antennal joint 3, less club-shaped, less rapidly thickened basally and the apical part less slender and shorter, ending in a much shorter basal terminal element; pubescence, especially in ♀♀, distinctly much darker, deeper and more extensively yellowish, pale golden brownish to chocolate brownish or with more numerous yellowish or brownish golden elements and if predominantly sericeous whitish in some ♂♂, antennal joint 3 is not club-like, that on disc of thorax in ♀♀ more distinctly yellowish or brownish golden, that on abdomen in ♀♀ more yellowish or brownish and if white in ♂♂ antennal joint 3 is not club-like, that on body below usually less extensively whitish, the bristly elements on thorax and abdomen especially darker and more numerous and if pale or not dark antennal joint 3 is not club-like; legs chocolate brownish, brownish or even yellowish in some ♀♀ or the femora may be darkened 21.

21. (24) Pubescence distinctly darker in ♀♀ at least, more brownish golden to chocolate brownish, that on body below without or with less whitish

elements, the bristly hairs on frons, antennae, face, on thorax, scutellum and abdomen predominantly very dark brownish, blackish brown or chocolate brownish; wings on the whole more darkly tinged mauvish brownish or brownish; face darker and more reddish brown; legs dark brownish or chocolate brown; antennal joint 3 more rapidly narrowed apically, the apical part on the whole more slender . . . 22.

22. (23) Slightly larger species, about 8½ mm. long, with a wing-length of about 9 mm.; pubescence predominantly darker, very dark or velvety chocolate brown, that on abdomen darker and more coffee brownish, that on body below predominantly chocolate brownish; antennae with joint 1 relatively shorter, about 2½ times as long as 2, with 3 longer than 1 and 2 combined, less rapidly narrowed apically, the apical slender part also longer; wings with the second longitudinal vein tending to be more rapidly bent up at its end, with the squamal fringe darker

♀ *namaquensis* n. sp. (p. 394).

(Syn. =*fuligineus* Bezz. nec Lw.)

23. (22) Slightly smaller species, about 7 mm. long, with a wing-length of about 8 mm.; pubescence slightly paler, gleaming paler golden brownish, with more golden gleams, that on abdomen gleaming more fulvous brownish to golden in certain lights, that on body below with more gleaming greyish sericeous whitish hair along middle of pleurae and base of venter on each side; antennae with joint 1 relatively longer and quite 3 times as long as 2, with 3 distinctly shorter, subequal to 1 and 2 combined, more rapidly narrowed apically, the apical slender part more slender and shorter; wings with the second longitudinal vein tending to be more gradually curved up at its end, with the squamal fringe and metapleural tuft paler and more yellowish . ♀ *badius* n. sp. (p. 398).

24. (21) Pubescence in both sexes very much paler, predominantly gleaming sericeous whitish in ♂♂, that on abdomen even appearing more silvery, that on body above in ♀♀ sericeous yellowish to gleaming golden yellowish, that on body below in both sexes more extensively gleaming greyish or sericeous whitish, even the coxal bristles pale, the hair in front of wings and in ♂♂ towards apex of venter ochreous, the bristly elements on frons, thorax and across all the tergites in ♀♀ reddish brownish to brown, those on thorax, scutellum and on entire abdomen in ♂♂ sericeous whitish, those on face and genae in both sexes pale yellowish sericeous or yellowish, not dark; wings on the whole slightly less darkly tinged and with a slight tendency for the anterior and basal darker part to be more distinctly marked off; face much paler, pale reddish yellow or yellowish; legs entirely or predominantly yellowish in ♀♀, but the femora blackened or darkened, sometimes to beyond middle in ♂♂; antennal joint 3 only gradually narrowed apically; hypopygium of ♂ (text-fig. 96) . . . . . ♂ ♀ *aberrans* n. sp. (p. 395).

25. (18) Wings either greyish hyaline for the greater part or distinctly less tinged, only infuscated yellowish brown, brownish or reddish in basal and costal parts or more distinctly and more darkly tinged coffee brown or mauvish brown in basal part up to end of basal cells and across to end of costal cell and in costal cell, this infuscation, however, distinctly delimited and well marked off from the more hyaline part even in ♀♀; pubescence

above, even in ♀♀, distinctly paler, predominantly whitish, straw-coloured yellowish, yellowish to golden yellow and, if darker or more fulvous, then wings have a well marked off basal infuscation . . . 26.

26. (35) Wings infuscated coffee brown, reddish brown to mauvish brown in anterior basal half in costal cell and basal part up to end of basal cells and across to end of costal cell, the greater part of second basal cell and basal parts of anal and axillary cells not being clearer and less infuscated than the dark basal parts, with the apical cross veins of basal cells more distinctly infuscated; face and genae predominantly paler, pallid, pale yellowish to very pale reddish yellow or yellowish brown . . . . . 27.

27. (32) Pubescence above in both sexes markedly short and especially in ♂♂ with a short cropped or shorn-off appearance on thorax, with the bristly hairs and bristles on head and especially on face less dense, shorter, poorly developed and not long and stoutish or stiff, that on genae not conspicuously extending down into the furrow between eyes and buccal cavity, with the pubescence on abdomen in ♂♂ more pelt-like, the bristles much shorter; legs more darkened and femora in ♂♂ extensively darkened or blackened to beyond middle or even entirely and even in ♀♀ with certain surfaces darkened or covered with blackish scaling; antennae with joint 1 distinctly shorter, only a little more, or distinctly much shorter, than 3 times as long as joint 2, with joint 3 comparatively stouter, subrod-like or gradually narrowed to apex in ♂♂, more broadened basally in ♀♀ than in ♂♂; proboscis with the spinules below distinctly visible and denser . . . . . 28.

28. (31) Pubescence predominantly pale creamy yellowish or whitish to golden yellowish, that on apex of abdomen in ♂♂ paler and more creamy whitish, with the hair in front of wings on each side distinctly deeper yellowish or more fulvous to deep golden, with the bristles in front of wings, on scutellum and on abdomen whitish, straw-coloured yellowish to pale golden, only a few blackish ones being present on sides of tergites 4 and 5 in ♂♂ and some laterally also on sides of 5–7 in ♀♀, with the coxal bristles even in ♀♀ straw-coloured yellowish to golden, with the hairs on antennae above yellowish; wings with the infuscated part slightly paler and more coffee brownish or yellowish brown, with the veins paler brownish; proboscis with the spinules below distinctly denser and more hair-like, visible; palps paler and more brownish . . . . 29.

29. (30) Pale creamy whitish, creamy yellowish to pale yellowish-haired forms, the ♂♂ being slightly paler, the pubescence on abdomen above being more straw-coloured whitish, paler in ♂♂; proboscis usually longer than 6 mm.; wings with the basal infuscation coffee brown; antennal joints 1 and 2 in ♀♀ almost black; bristles on frons and face dark blackish brown to black; hypopygium of ♂ (text-fig. 97)

♂ ♀ *albidus* Lw. (p. 398).

30. (29) Distinctly golden yellow-haired form, in ♀ at least, with golden sheen, the pubescence on sides of thorax in front of wings even more orange golden or fulvous, that on abdomen above more or less uniformly golden, the hair on pectoral region and coxae not creamy or sericeous but pale golden yellow, the transverse bristles on abdomen more golden or

brownish yellow; proboscis about 6 mm. long; wings with the basal infuscation paler and more yellowish brown; antennal joints 1 and 2 distinctly darker, dark reddish brown; bristles on frons and face also more reddish brown . . . ♀ *albidus* var. *auripilus* n. (p. 401).

31. (28) Pubescence predominantly white or silvery white, appearing greyish from above, that on disc of thorax in ♀♀ slightly yellowish or pale brownish, with the hair on abdomen above silvery whitish in both sexes, more apparent in ♂♂, those across hind margin of tergite 2 with a slight yellowish tint and also along extreme sides towards apex in some ♀♀, with the hair in front of wings entirely white, only the numerous bristles there in ♀♀ being brownish to dark brown, with the hair on body below also more silvery whitish, but also with ochreous or fulvous brown ones near apex of venter in ♂♂ especially, with the bristles on sides of thorax, on posterior calli, scutellum and transversely across all the abdominal segments as well as intermixed bristles on coxae and a few on each side of propleurae in front of front coxae dark golden brown to black in ♀♀, those on thorax more golden brown, with the thoracic and scutellar bristles and almost all those on abdomen in ♂♂ whitish, only some on sides of tergites 4 and 5 being blackish or black, with the hairs on antennae above dark or blackish; wings with the infuscated part distinctly darker and more mauvish brown, with the veins also darker brownish; proboscis with the spinules below less distinctly visible and only so near base; palps more blackish brown
♂ ♀ *polioleucus* n. sp. (p. 401).

32. (27) Pubescence above distinctly longer and more shaggy even in ♂♂, slightly more recumbent, without a very striking cropped or shorn-off appearance on thorax, with the bristles on face and genae longer, denser and more conspicuously developed, sometimes markedly stout, rigid, stiff and brush-like, well developed and conspicuous even in the furrow separating eyes from buccal cavity, with the pubescence on abdomen not pelt-like but distinctly longer, more shaggy and more recumbent, the bristles being also longer; legs much paler yellowish, the femora entirely yellow or only slightly darkened along upper surfaces; antennae with joint 1 distinctly longer, quite 3, or even considerably more than 3, times as long as 2, with joint 3 more rapidly attenuated apically from broad basal half, the apical part or third being comparatively more slender or very slender; proboscis with the spinules below almost indiscernible, very minute and less dense . . . . . 33.

33. (34) Wings with the costal and basal dark brownish or mauvish brown infuscation more extensive and diffuse, extending into basal parts of first posterior and discoidal cells and into basal half of anal cell and less delimited from greyish hyaline part; pubescence longer and more shaggy, with the bristles in front of wings dark reddish brown and the hairs there fulvous or brownish golden, with the transverse bristles laterally on abdominal segments 3–5 at least with distinct stouter blackish brown or black bristles, with the bristles on face in front and sides distinctly denser and with only a few or without any yellowish intermixed ones, with well-developed pubescent hairs on femora below basally; antennal joint 1 longer and much longer than 4 times as long as joint 2; sides of abdomen

less extensively red, the red not extending much dorsally; spines on hind femora below comparatively long and slender

♂ *tumidifrons* Bezz. (p. 414).

34. (33) Wings with the costal and basal coffee brownish infuscation less extensive and less diffuse, distinctly delimited from clear part, the infuscation ceasing at apical cross veins of first and second basal cells, which veins also show a much more distinct darkish infuscation, with the bases of first posterior and discoidal cells and even basal part of anal cell clear; pubescence slightly shorter, with the bristles in front of wing bases pale yellowish and the hairs there only a little more yellowish than the creamy yellowish ones on disc, with the transverse bristles on abdomen above entirely creamy yellowish, without any blackish ones, with the bristles on face and sides of face less dense and less numerous and with numerous yellowish ones intermixed, with the pubescent hairs at bases of femora below less developed; antennal joint 1 much shorter, only about 4 times as long as 2; sides of abdomen more extensively reddened, the red extending considerably dorsally; spines on hind femora below much shorter . . . . . ♂ *rhodesianus* n. sp. (p. 414).

35. (26) Wings more uniformly subopaquely greyish hyaline, only the extreme base, costal cell and first basal cell being tinged yellowish or pale yellowish brown, the entire second basal cell, anal and axillary cells being greyish hyaline like rest of wing, with the apical cross veins of first and second basal cells not or scarcely showing any distinct infuscations; face, genae or face at least duller and darker or more obscure reddish brown and often so only anteriorly or on sides . . . . . 36.

36. (39) Larger species, longer than 6½ mm. and with a wing-length longer than 7 mm.; pubescence comparatively short, especially on thorax, showing a closely cropped or shorn-off appearance, more distinct in ♂♂, with that on body below markedly or more strikingly white or whitish, with the transverse bristles on abdomen above in both sexes predominantly or entirely very dark blackish brown or black, with those on thorax in some ♂♂ also darker reddish or golden brownish; wings with the basal comb strongly developed; legs with more numerous, more than 5, spines on hind femora below, with a tendency for some of the apical spicules in lower outer row on front and middle tibiae to be pallid or yellowish, with the claws tending to be less sharply bent downwards apically; interocular space in ♂♂ very narrow, at narrowest part about as broad as, or only a very little broader than, front ocellus, the eyes somewhat flattened above and the upper facets very coarse; antennal joint 3 more slender, gradually tapering from a broadened base . . . 37.

37. (38) Pubescence above in ♂, when viewed from side, more silvery white, with the hair on disc of thorax, the hair and bristles in front of wings, bristles on posterior calli and scutellum in ♂ pale reddish brown to brownish, that on head below and body below more uniformly silvery white, with the coxal bristles also silvery white, the hair on abdomen above more pale fulvous, those transversely across hind margins more silvery whitish in certain lights, with the bristly hairs and bristles on frons and face dark reddish brown; legs entirely pale ochreous yellow, with whitish scaling, with the front femora unarmed or with only a feeble spine behind;

face and head below paler brownish and antennal joints 1 and 2 more distinctly dark brownish or reddish brown

♂ *spinithorax* Bezz. (p. 406).

38. (37) Pubescence above, when viewed from side, duller and more straw-coloured yellowish in ♂♂ and more uniformly yellowish to pale golden yellowish in ♀♀, the hair on disc of thorax, bristly hairs and bristles in front of wings, on posterior calli and scutellum pale straw-coloured yellowish in ♂♂ and slightly deeper yellowish in ♀♀, with that on head below, pleural and pectoral regions and sides of venter frosty or chalky white, contrasting markedly with that above, with the coxal bristles straw-coloured yellowish, with the hair on abdomen above paler and more straw-coloured yellowish to very pale yellowish in ♂♂ and more uniformly yellowish in ♀♀, those transversely across segments scarcely paler in ♂♂ and entirely yellowish in ♀♀, with the bristly hairs and bristles on frons and face black in both sexes; legs more brownish yellow, with the femora blackened basally in ♂♂, with black scaling on front faces in addition to the whitish scaling and with often 2–3 distinct spines in front and behind on front femora; face and head below almost entirely black or very dark brownish and antennal joints 1 and 2 black in both sexes

Certain forms of *albipectus* n. sp. (p. 486).

39. (36) Small species, about 5½–6½ mm. long, with a wing-length of about 6–7 mm.; pubescence on body above distinctly longer and more recumbent, not with a very distinct shorn-off appearance on thorax, entirely very pale yellowish or straw-coloured yellowish, only the apical part of abdomen in some ♀♀ being slightly more yellowish, with all the bristles on thorax and abdomen entirely yellowish like rest of hair, only the bristly hairs on head above, some intermixed on face and a few inconspicuous ones on sides of abdomen in ♂ blackish, with the hair on body below scarcely paler than that above and not frosty white or silvery; wings with the basal comb poorly developed; legs with only about 5 spines on hind femora below, with the apical parts of claws more sharply curved downwards, with all the spicules in lower outer row on front and middle tibiae black; interocular space in ♂ broader and distinctly much broader than front ocellus, the eyes not flattened above and the upper facets not markedly coarser than lower ones; antennal joint 3 much shorter, about as long as 1 and 2 combined, more rapidly narrowed from a comparatively broader base

♂ ♀ *transvaalensis* n. sp. (p. 417).

40. (9) Face, head below and also, to a certain extent, the genae predominantly or entirely very dark or black; sides of abdomen in ♂♂ entirely black or at least distinctly less extensively reddened . . . . 41.

41. (42) Wings with an anterior well marked off or delimited coffee brown infuscation in costal cell and at base, extending up to apices of basal cells and across to end of costal cell, the second basal cell and basal parts of anal and axillary cells being as darkly infuscated as costal and basal parts, the rest of wings greyish hyaline; pubescence predominantly silvery whitish in both sexes, only the venter apically and along sides slightly yellowish, with 3 distinct, strong, black macrochaetae on each side in front of wing-bases, with the transverse bristles on abdomen in

♀♀ entirely or predominantly black, whitish in ♂♂, only a few or some dark or blackish ones being present on sides of segments 4 and 5 in ♂♂; abdomen in ♂♂ entirely black on sides, and scutellum in ♂♂ also tending to be blackish or even entirely black; legs with the femora entirely black in both sexes or at least in ♀♀ also much darkened, with the tibiae dark brownish or brownish yellow . ♂ ♀ *neglectus* n. sp. (p. 404).

42. (41) Wings either almost entirely subopaquely greyish hyaline, the costal cell and base alone being tinged yellowish or pale yellowish brown or the wings are more diffusely tinged faintly mauvish brown or faintly cinereous, becoming darker towards base and in costal cell, but without a distinctly and sharply delimited basal and costal infuscation and with the greater part of the second basal and even anal and axillary cells distinctly clearer than costal and basal parts; pubescence silvery whitish, straw-coloured yellowish, golden yellowish to deep golden and, when silvery whitish, always with numerous black bristles on thorax in front of wing-bases or with those on abdomen, even in ♂♂, with more numerous or predominantly black ones; abdomen in ♂♂ usually with some red on sides and, if not, then all the bristles are at least dark or black, with the scutellum either entirely red or sometimes also obscurely reddish discally; legs with the femora less extensively darkened or entirely yellowish in ♂♂, predominantly yellow also in ♀♀, rarely entirely darkened and, if so, then tibiae are also black and thorax has more numerous black bristles . . . . . 43.

43. (52) Pubescence on body not predominantly silvery whitish above and below in both sexes and, if silvery whitish in ♂♂, then at least with some yellowish hair in front of wings or on sides of abdomen and venter, with the stoutish bristles on thorax, scutellum and transversely across abdomen not all entirely black in ♀♀; legs in ♀♀ not entirely black; sides of abdomen in ♂♂ always with some red or reddish; face tending to be more conically prominent; interocular space in known ♀♀ narrower, distinctly much less than 5 times as broad as ocellar tubercle; wings not tinged cinereous and without an almost sooty blackish or blackish brown infuscation towards base especially in ♀♀ . . . . . 44.

44. (49) Pubescence with the hair on pleural regions, metapleural tuft and sides of venter straw-coloured yellowish, yellowish or sericeous yellowish, not markedly contrasting with that on body above or very gleaming silvery whitish, with the transverse bristles on abdomen entirely straw-coloured yellowish or yellow like rest of hair or pale reddish, reddish yellow to reddish brown and not black; antennal joint 3, especially in ♀♀, markedly thickened basally in basal third and then very or more rapidly narrowed along lower or inner side, thus producing a more distinct angular or subangular prominence; sides of abdomen in known ♂♂ more distinctly and more broadly red, the venter paler reddish; legs with the pubescent hairs on femora below in ♂♂ poorly developed or absent . . 45.

45. (48) Larger species, about 8–10 mm. long, with a wing-length of about 8–10 mm.; pubescence on body predominantly deep yellowish, chrome yellowish to deep golden yellow, often with marked golden or sericeous gleams, distinctly shorter and with a cropped or shorn-off appearance even in ♀♀, with the blackish bristly hairs on face in front in both sexes

tending to be denser and stiffer and more brush-like; proboscis longer, about 4–5 mm. long and with the minute spinules below more visible; wings either entirely faintly tinged mauvish or at least with the base, costal cell and first basal cell distinctly darker brownish, with the basal comb distinctly larger and more developed; antennal joint 3 distinctly much longer than 1 and 2 combined; legs with the femora in ♂♂ more extensively darkened even to beyond middle and in ♀♀ also often extensively darkened along front surfaces by black hair-like scaling, with the tibiae also darkened by black scaling and hind femora with more than 4 or 5 spines below . . . . . 46.

46. (47) Wings slightly longer in relation to body, distinctly, though faintly, tinged mauvish, with the costal cell, base, first basal cell, basal part of second basal cell and even extreme base of anal cell darker mauvish brown; pubescence on body above often more gleaming golden yellow or sericeous yellow, with that on pleural parts only slightly paler yellowish than above, with at least some or all the transverse bristles, especially on sides, of abdomen pale reddish yellow, reddish to reddish brown; legs with the femora in ♂♂ only blackened or darkened towards base, the greater part of hind ones being yellowish and in ♀ only darkened by blackish scaling along upper or front surfaces; slightly smaller form, about 8–10 mm. long, with a wing-length of about 8–10 mm.; hypopygium of ♂ (text-fig. 101) . . . . ♂ ♀ *bombycinus* n. sp. (p. 407).

47. (46) Wings slightly shorter in relation to body, more greyish hyaline, only the base, costal cell, first basal cell and extreme bases of second basal and anal cells brownish; pubescence above with the golden yellow hair slightly duller and less gleaming, with that on pleurae, across middle, slightly duller and distinctly paler and more straw-coloured whitish or whitish in certain lights, with all the transverse bristles on abdomen entirely yellow like rest of hair in both sexes, the hair towards apex of venter in ♂, however, slightly more brownish; legs with all the femora in ♂ blackened to much beyond middle, with the bases of front ones in ♀ and the upper surfaces of the others also darkened with the tibiae in the ♂, especially hind ones, also more darkened; slightly larger form, about 9–10 mm. long, with a wing-length of about 8½–9 mm.; hypopygium of ♂ (text-fig. 102) . . ♂ ♀ *bombycinus* var. *bedfordi* n. (p. 410).

48. (45) Smaller species, about 5½–6½ mm. long, with a wing-length of about 6–7 mm.; pubescence on body, including all the bristles (excepting only a few inconspicuous dark or blackish intermixed ones on sides of abdomen in ♂ and on head above in both sexes) much paler, straw-coloured yellowish or whitish, only slightly yellowish at apex of abdomen in some ♀♀, distinctly duller, slightly longer and more recumbent and without a marked shorn-off appearance, with the blackish brown bristly hairs on face less dense and distinctly less stiff; proboscis shorter, less than 4 or 5 mm. long, with the spinules below almost invisible; wings greyish hyaline and with the costal cell and basal parts paler and more yellowish, pale yellowish brown, with the basal comb distinctly smaller and poorly developed; antennal joint 3 shorter, only a very little or scarcely longer than 1 and 2 combined; legs more uniformly yellowish, only the basal half of front femora and extreme bases of the others

darkened, not blackened along upper surfaces, the tibiae on the whole distinctly more yellowish and the hind femora with only about 4 or 5 spines below . . . . ♂ ♀ *transvaalensis* n. sp. (p. 417).

49. (44) Pubescence with the hair on pleural regions, metapleural tuft and sides of venter markedly frosty white or gleaming silvery whitish, thus either markedly contrasting with pubescence above or more conspicuously silvery, with the transverse bristles on abdomen in both sexes distinctly darker, very dark blackish brown or black and also more conspicuous; antennal joint 3 not markedly thickened in basal third to form a subangular or angular prominence on lower side; sides of abdomen in ♂♂ almost entirely black or much more indistinctly reddened, the venter also darker; legs with the pubescent hairs on femora below basally in ♂♂ more evident . . . . . 50.

50. (51) Smaller species, about 5½–7 mm. long, with a wing-length of about 5½–7 mm.; pubescence on body sericeous whitish on thorax, more yellowish in front of wings and on disc, more gleaming yellowish on abdomen above especially on sides, with more distinctly pale sericeous yellowish hair on venter laterally and more ochreous ones in ♂ towards apex, with silvery whitish hair on pleurae and sides of venter and upper part of metapleural tuft being more gleaming sericeous yellowish, with the bristles in front of wings, on scutellum and transversely on abdomen in both sexes black; wings greyish hyaline, the costal cell, base, first basal cell and to a certain extent the second basal cell distinctly darker and more brownish, with the basal comb smaller; scutellum tending to be entirely black in ♂ and often with an obscure reddish tint discally in ♀; sides of abdomen in ♂ scarcely obscure reddish; interocular space in ♂ broader, about as broad as ocellar tubercle, the eyes not markedly flattened above and the upper facets only slightly coarser than those below; legs with the front and middle femora darker and more brownish and with only about 5–6 spines on hind ones below; hypopygium of ♂ (text-fig 109) without a lateral process on each side of aedeagus ♂ ♀ *lightfooti* n. sp. (p. 430).

51. (50) Larger species, about 8–11 mm. long, with a wing-length of about 9–12 mm.; pubescence above creamy whitish to pale yellowish in ♂♂, more uniformly yellowish to golden yellowish in ♀♀, that on abdomen laterally in ♂♂ also yellowish, with the hair on head below, pleural regions and sides of venter markedly frosty or chalky white and markedly contrasting with that above (*Anastoechus*-like), with the bristles in front of wings, on posterior calli and scutellum yellowish in both sexes and those transversely across abdomen black, stout and conspicuous; wings greyish hyaline, with the base, costal cell and first basal cell more ochreous yellowish, not brownish, with the basal comb more strongly developed; scutellum predominantly ferruginous red in both sexes; sides of abdomen in ♂♂ distinctly and more broadly red; interocular space in ♂♂ very narrow, at narrowest part about as broad as, or only very little broader than, front ocellus, the eyes markedly flattened above, large and with the upper facets very coarse; legs with the front and middle femora in ♂♂ darker at base, only those of ♀♀ entirely yellowish or, if slightly darkened by blackish scaling, then along upper surfaces, with more

numerous and more than 6 spines on hind ones below; hypopygium of ♂ (text-fig. 134) with a distinct clavate process on each side of aedeagus formed by the forward continuation of the ramus from basal part on each side. ♂ ♀ *albipectus* n. sp. (especially some ♀-specimens with dark spines on tibiae below) (p. 486).

52. (43) Pubescence on body predominantly silvery whitish, without any yellow or yellowish tinted hair in front of wing-bases or on sides of abdomen, with the bristles on head, thorax in front of wings, on scutellum and transversely across abdomen entirely black in known ♀ at least; legs entirely black; sides of abdomen black; face tending to be more bluntly rounded in front; interocular space in ♀ broader, nearly 5 times as broad as tubercle; wings with a slight, but distinct, cinereous tinge, the costal and basal parts being distinctly more sooty black or at least deep blackish brown. (Scutellum almost entirely black; antennal joint 1 only a little more than 3 times as long as 2) . . ♀ *leucostictus* n. sp. (p. 416).

53. (8) Scutellum entirely or predominantly black, without any red or only with very obscure and indistinct reddish discally; face tending to be less conically prominent and with the pubescence denser, longer and more shaggy in both sexes; sides of abdomen in ♂♂ never red; face always entirely or predominantly very dark or black . . . . 54.

54. (69) Wings distinctly and more diffusely tinged smoky cinereous, coffee brownish to mauvish brown, more so in ♂♂, distinctly more deeply so towards base and slightly deeper in ♂♂, the darker basal part imperceptibly merging into less infuscated part, thus not well marked off, with the greater part of wing not greyish hyaline; pubescence, especially in ♂♂, distinctly longer and more recumbent, that on thorax with a less cropped or shorn-off appearance, with the hair on abdomen also longer and less pelt-like, with the bristles in ♀♀ also longer, more conspicuous and much longer than the hair; sides of face somewhat tumid . . . 55.

55. (56) Wings tinged more smoky or cinereous, becoming darker and more blackish brown or sooty at base, in costal cell and first and second basal cells; pubescence above and below entirely silvery white, with, however, all the bristles on head, thorax in front of wings and laterally, on scutellum and transversely across abdomen black; scutellum in ♀ with a very slight rufous tint discally behind; legs entirely black; interocular space in ♀ very broad, nearly 5 times as broad as ocellar tubercle or distance from lateral ocellus to margin of eye on each side is much longer than antennal joint 1 . . . ♀ *leucostictus* n. sp. (p. 416).

56. (55) Wings tinged more brownish, coffee brownish or mauvish brown, the darker basal and costal parts being darker mauvish brown and not blackish; pubescence on body not entirely silvery whitish, even in ♂♂, but always with some creamy yellowish or yellowish hair on sides of thorax or on disc above or on sides of abdomen or on venter below, with the bristles not entirely black on all these sites; scutellum entirely black; legs yellowish or brownish or with the tibiae and tarsi in part yellowish or brownish and, when entirely black, all the bristles on body at least are not black; interocular space in known ♀♀ narrower, distinctly less than 5 times as broad as tubercle or the distance between lateral ocellus and eye is shorter or only subequal to length of first antennal joints . 57.

57. (68) Pubescence on body below, even in ♂♂, always with some or much whitish, straw-coloured or yellowish hair and always with some silvery whitish, yellowish or golden yellowish depressed pubescence on frons and face; wings in ♂♂ with the costal and basal infuscation more extensive, with the basal comb more developed; halteres with the knobs paler or whitish; antennal joint 3 broader and more distinctly thickened basally; interocular space in ♂♂, at narrowest part, broader than front ocellus, more or less half as long as antennal joint 1; legs not uniformly dark brown, the femora in ♂♂, if darkened, at least much darker than the tibiae, with more than 4 or 5 spines on hind ones below which begin nearer base; hypopygium of ♂♂ with the ventral part of aedeagus distinctly produced into a ventral keel-like plate; larger forms usually not less than 6 mm. long and with a wing-length of not less than 6 mm. 58.

58. (67) Pubescence on body predominantly whitish, creamy whitish or yellowish in ♂♂ and also with much paler or whitish hair on thorax in front and on pleurae and sides of abdomen even in ♀♀, always with much silvery whitish or white hair on pleurae in both sexes; antennal joint 1 distinctly shorter, scarcely and not more than 3 times as long as joint 2 in ♂♂ at least, with joint 3 less rapidly narrowed apically, the apical third not being very slender . . . . . 59.

59. (66) Smaller forms, about 5–8 mm. long, with a wing-length of about 6–8 mm.; pubescence in ♂♂ at least predominantly sericeous or silvery whitish or white, with that towards apex of abdomen distinctly whiter and more silvery white, with sericeous yellowish, straw-coloured yellowish, pale yellowish or even fulvous hair on sides of thorax in front of wings and on abdomen in ♀♀, with the hair on face distinctly less dense, sparser, the pale hairs less conspicuously developed and not very pubescent and concentrated round buccal cavity, with some dark bristles in front of wings in both sexes and without any, with only a few or with the dark or blackish bristles on sides of abdominal segments in ♂♂ less developed, distinct only on 2 and 3; wings less strongly developed, less broad basally in ♂♂, with the alula and axillary lobe not so markedly broad and conspicuously lobe-like, with the basal comb slightly smaller; legs either entirely yellowish or entirely black . . . . . 60.

60. (65) Pubescence with deeper yellowish or fulvous yellowish hair in front of wings, on mesopleuron, discally on thorax and on each side just above wings and on sides of abdomen to a certain extent in both sexes, but more extensively fulvous or sericeous yellow on abdomen in ♀♀, with the dark or black bristly hairs on face more numerous and more conspicuous, with or without blackish bristles on sides of abdomen in ♂♂, with dark or black bristles laterally on segments 2–6 and also discally on 3–6 in ♀♀; interocular space in ♀♀, relative to tubercle, slightly broader, nearly 4, quite 3½, times as broad as ocellar tubercle; antennal joint 1 in ♀♀ red or reddish; legs almost entirely yellowish, with the femora blackened in ♂♂ to a variable extent or even entirely, predominantly or entirely yellowish in ♀♀; wings in both sexes tinged slightly darker mauvish and the basal infuscation apparently also darker and more extensive 61.

61. (64) Bristly hairs on face and genae and the transverse bristles on abdomen, especially laterally and towards apex, in ♀♀ at least, distinctly darker, more blackish brown to black; face tending to be darker or even entirely blackish . . . . . 62.

62. (63) Legs with the femora, especially front and middle ones, blackened to a variable extent in ♂♂, the hind ones being almost entirely yellowish, with the legs in ♀♀ entirely yellowish; abdomen in ♂♂ with almost entirely silvery white hair, without any dark or blackish bristles on sides of segments 2 and 3 and also without conspicuous yellowish hairs on these segments laterally . . . ♂ ♀ *nigripes* var. *plebeius* n. (p. 421).

63. (62) Legs, on the whole, much darker, almost entirely black, the tibiae scarcely less dark than the femora and the hind femora also entirely black in ♂♂ at least; abdomen in ♂♂ with some more conspicuous fulvous hairs laterally and with distinct dark or black bristles or bristly hairs laterally on segments 2 and 3 . . . ♂ *nigripes* var. *plebeius* n. (p. 421).
(Form of it.)

64. (61) Bristly hairs on sides of face and genae predominantly and the transverse bristles on sides and towards apex of abdomen, in ♀ at least, distinctly paler, pale yellowish brownish, those on face often gleaming brownish golden and those towards apex of abdomen darker again; face tending to be more distinctly reddish brown on sides
♀ *nigripes* var. *plebeius* n. (p. 421).
(Form of it.)

65. (60) Pubescence in ♂♂ predominantly straw-coloured whitish to white, with only slightly and much paler yellowish hair in front of wings and on mesopleuron, that on abdomen entirely white, with paler yellowish or more straw-coloured hair in front of wings, on disc of thorax in ♀♀ also, that on abdomen in ♀♀ sericeous yellow to pale golden yellowish, with the black bristly hairs on face less numerous, the paler ones more conspicuous, without any black bristles on sides of abdomen in ♂♂, with only black bristles laterally in ♀♀, those discally on 3–6 distinctly paler; interocular space in ♀♀, relative to tubercle, slightly narrower, only a little more than 3 times as broad as tubercle; antennal joint 1 in ♀ black; legs in both sexes entirely very dark or black, the femora entirely black even in ♀♀; wings slightly less darkly tinged, the darker basal infuscation apparently slightly less extensive . ♂ ♀ *nigripes* Lw. s. str. (p. 419).

66. (59) Slightly larger form, about 9 mm. long, with a wing-length of about 10 mm.; pubescence in ♂ at least predominantly more creamy yellowish and slightly duller, only sericeous whitish on abdomen above, with that on sides in front of wings scarcely deeper creamy yellowish, with the hair on face distinctly much denser, the pale hairs distinctly more numerous, conspicuously developed and concentrated around the buccal cavity, without any dark bristles in front of wings, but with more conspicuous black bristles laterally on most of the abdominal segments; wings markedly developed, being markedly broad towards base, the axillary and alular lobes being very broad and lobe-like, with the basal comb also larger; legs entirely black . . ♂ *nigripes* var. *nomteleënsis* (p. 424).

67. (58) Pubescence on body deep fulvous or golden brownish, more orange golden when viewed from side, that on abdomen above pale orange

golden, with that on body below yellowish golden, only the head below white, with the transverse bristles on abdomen laterally on segments 2–5 blackish brown; antennal joint 1 longer, slightly more than 3 times as long as joint 2, with joint 3 distinctly more rapidly narrowed apically from broad base, the apical third at least being more slender. (Wings well developed, very broad basally and with the axillary lobe very large; legs with the femora black and the tibiae dark brownish)

♂ *stevensoni* n. sp. (p. 425).

68. (57) Pubescence on entire body below rusty brown to blackish brown, even the mesopleural tuft being blackish brown, with only black bristly hairs on head and no pale or whitish depressed hairs; wings with the costal and basal darker infuscated part less extensive, with the basal comb small and poorly developed; halteres darker and with brownish knobs; antennal joint 3 more rod-like, only very little broader basally than apically; interocular space in ♂, at narrowest part, only about as broad as front ocellus, distinctly much narrower than half as long as antennal joint 1; legs uniformly dark brownish, with only about 4 or 5 spines in apical half on hind femora below; hypopygium (text-fig. 108) without any distinct flattened, ventral keel below sickle-shaped aedeagus; smaller species, about 5½ mm. long, with a wing-length of about 5 mm.

♂ *fusciventris* n. sp. (p. 426).

69. (54) Wings distinctly less diffusely tinged, only the base, costal cell, first and second basal cells or only the costal cell, base and first basal cell being darkly tinged or coloured yellowish brown, brownish to mauvish brown, the greater part of wing being thus more greyish hyaline and more distinctly or even well marked off from dark basal infuscation; pubescence, especially in ♂♂, shorter, more pubescent, that on thorax above more cropped or shorn off in appearance, that on abdomen shorter, more pelt-like and gleaming in ♂♂, with the bristles in ♀♀ shorter and less conspicuous; sides of face not tending to be tumid and if slightly tumid wings are less tinged . . . . . 70.

70. (73) Pubescence predominantly silvery whitish, that on abdomen in ♂♂ shining silvery white, that on abdomen in ♀♀ also with more sericeous whitish hair, that on sides being more yellowish sericeous, that on pleurae more extensively silvery whitish, with the metapleural tuft and squamal fringe silvery whitish, without any dark or black bristles on abdomen in ♂♂ or with only a few inconspicuous ones on sides of segments 4 and 5, with black transverse bristles on abdomen in ♀♀ or with at least dark ones laterally towards apex; legs with the femora in both sexes extensively or entirely black or dark or the entire legs may be dark, the tibiae being scarcely or only slightly paler than the femora; hypopygium of ♂♂ with a well-developed ventral, keel-like plate below aedeagus . 71.

71. (72) Wings with the costal and basal infuscation coffee brownish, more conspicuous and extending to apices of basal cells and across to end of costal cell, well marked off from more hyaline part of wing and even more so in ♂♂; interocular space in ♂♂ broader, about as broad as ocellar tubercle or as broad as more than half length of antennal joint 1, about 3 times as broad as tubercle in ♀♀; eyes in ♂♂ with the upper facets almost imperceptibly coarser than lower ones; proboscis longer, about 5–6 mm.

long; pubescence almost entirely silvery whitish in both sexes, with no pale yellowish hair in front of wings or on mesopleuron and with scarcely any sericeous yellow hair on abdomen above in ♀♀, with 3 stout, distinct, black macrochaetae in front of the wings in both sexes and with often all the transverse bristles on abdomen in ♀♀ as well as those on scutellum black, but only a few intermixed dark or black ones laterally on segments 4 and 5 in ♂♂, with the bristly hairs on face in both sexes sparser; scutellum tending to be more reddish in some ♂♂ and in ♀♀ often entirely reddish; slightly larger species, about 8–10 mm. long, with a wing-length of about 8–10 mm. ♂ ♀ *neglectus* n. sp. (p. 404).

72. (71) Wings with the costal and basal infuscation paler, more pale brownish, distinctly less extensive, the apical parts of first and second basal cells or even greater part of second basal cell clearer and less dark than basal infuscation, with this infuscation also less well marked off from greyish hyaline part and even less so in ♀♀; interocular space in ♂♂ distinctly narrower, only about as broad as front part of tubercle or much less than half length of first antennal joints, in ♀♀ distinctly more than 3 times as broad as tubercle; eyes in ♂♂ with the upper facets distinctly coarser than lower ones; proboscis shorter, only about 3–4 mm. long; pubescence with some yellowish or sericeous yellowish hair on sides of thorax even in some ♂♂ and often extensively on abdomen above and laterally in ♀♀, without any black bristles in front of wings and without any black ones laterally on abdomen in ♂♂, those on abdomen in ♂♂ being predominantly yellowish, those laterally towards apex and apically in some ♀♀ often darker, even brownish to blackish brown, those on scutellum yellowish, with the black bristly hairs on face distinctly much denser and more conspicuously developed; scutellum entirely black in both sexes; smaller species, about 6–8½ mm. long, with a wing-length of about 6–7½ mm. ♂ ♀ *argyroleucus* n. sp. (p. 428).

73. (70) Pubescence not predominantly or entirely silvery whitish, more yellowish from above and, when viewed from the side, that on occiput, sides of thorax in front of wings and down the propleurae, that on disc of thorax and scutellum, that in metapleural tuft, on squamae, greater part of abdomen above even in ♂ and apical part of venter, especially in ♀, rich creamy yellow to gleaming pale yellowish brown, with only the middle part of pleurae and base of venter and abdomen silvery whitish, especially in ♂, with some macrochaetae in front of wings, the posterior callar bristles, scutellar bristles and all the transverse bristles on abdomen in both sexes dark blackish brown to black; legs on the whole paler and more yellowish brown to brownish, the front femora being dark and the apical parts of the tibiae and also the entire tarsi almost black; hypopygium of ♂ (text-fig. 109) without a well-developed, flattened, vertical, keel-like plate below aedeagus. (Wings with the costal cell, base, first basal cell and to a certain extent the second basal cell darker, yellowish brown and more so in ♂) . . . ♂ ♀ *lightfooti* n. sp. (p. 430).

74. (1) All the spines or spicules in lower outer row and the longer lower apical spines or spurs on front and middle tibiae as well as the spines behind on middle femora entirely or predominantly pallid or yellowish, not black like the rest of the spicules . . . . . 75.

75. (128) Wings distinctly, though often faintly, tinged more extensively yellowish brown, brownish, coffee brownish to mauvish brown, in basal part this infuscation usually distinctly more diffuse or extensive, occupying the costal cell, base, first basal cell, second basal cell to a varying extent, even bases of marginal cell, first posterior cell and discoidal cell as well as extreme bases of anal and axillary cells and also alula, with the second basal cell never entirely or for its greater part clear or hyaline, being always distinctly more subopaque or darkly tinged than discoidal cell, with the rest of wing in a large number of species distinctly tinged greyish, feebly or faintly mauvish brown to darker mauvish . . 76.

76. (91) Wings with the second basal cell entirely or almost entirely and distinctly infuscated to the same extent as costal cell, base and first basal cell, the infuscated basal part thus much darker and more distinctly conspicuous and delimited from rest of wing, especially in the ♂♂ . 77.

77. (82) Scutellum entirely red or reddish or at least with the greater part or more than half of the disc red in both sexes; sides of abdomen in known ♂♂ always with more extensive red or reddish; femora in ♀♀ never entirely black or blackish brown; black transverse bristles on abdomen more developed, in both sexes encroaching much on disc above towards midline, even in ♂♂, with at least those above on segments 4–7 predominantly or entirely black . . . . . 78.

78. (79) Larger species, about 10–13 mm. long, with a wing-length of about 10½–14 mm.; pubescence on pleural and pectoral regions straw-coloured yellowish, yellowish to very pale golden yellowish, that on body above yellowish to golden, even deep golden yellow, with predominantly pale yellowish bristly hairs on face in ♀♀, only a few intermixed ones in front being black; sides of abdomen in ♂♂ obscurely reddish; proboscis longer, about 6–8 mm. long, with the fine hair-like spinules below dense and more distinctly visible; wings distinctly more greyish hyaline, with the basal and costal yellowish brown to reddish brown infuscation more distinctly delimited from rest of wing

♂ ♀ *inordinatus* n. sp. (p. 431).
(Syn. = *mixtus* Bezz. nec Wied.)

79. (78) Smaller species, about 7–9 mm. long, with a wing-length of about 8–9½ mm.; pubescence on pectus and pleurae distinctly paler and more straw-coloured whitish or white, that on body above less golden yellow, more pale yellowish white to very pale yellowish, with distinctly more numerous and denser black bristly hairs on face in ♀♀; sides of abdomen in known ♂♂ more extensively and more distinctly reddened; proboscis shorter, about 4–5 mm. long, with the spinules below finer, less dense and less distinctly visible; wings more distinctly slightly more darkly tinged mauvish or dark mauvish, with the basal and costal infuscation slightly darker, dark brownish to mauvish brown and also slightly more diffused . . . . . 80.

80. (81) Wings very darkly tinged mauvish, the costal and basal infuscation dark mauvish brown; the bristles and macrochaetae in front of wings, on posterior calli, scutellum and transversely across abdomen all black; antennal joint 3 less slender, shorter, not longer than joints 1 and 2 combined, the apical part thickened on inner side; face with a tendency

to be obscurely reddish on the sides and above; tibiae with the upper outer row of spines on front ones entirely black like the inner or front upper row . . . . . ♀ *badipennis* n. sp. (p. 435).

81. (80) Wings only very feebly tinged mauvish, the costal and basal infuscation more brownish; the bristles and macrochaetae in front of wings, the posterior callar ones on thorax and those on scutellum pale yellowish or whitish, only those on abdomen being black; antennal joint 3 in ♀♀ comparatively more slender and longer, longer than joints 1 and 2 combined, the apical part more slender and longer, without a thickened part below, with joint 3 almost rod-like in ♂♂, scarcely thicker basally; face entirely black; tibiae more often, especially in ♀♀, with the spines in upper outer row on front ones entirely pallid or with a large number of pallid ones; sides of abdomen in ♂♂ extensively red; femora blackened to beyond middle in ♂♂; pubescence above paler than in ♀♀, more straw-coloured yellowish or whitish . ♂ ♀ *canipectus* n. sp. (p. 436).

82. (77) Scutellum entirely black, much darkened or only very feebly and obscurely tinted reddish, with the red, if developed, occupying not more than the posterior half of disc or with a large basal black spot; sides of abdomen in known ♂♂ entirely black or with the red very obscure; femora in ♀♀ usually, as in ♂♂, blackish brown or black; black transverse bristles on abdomen developed only on sides or extreme sides and extending towards middle above only on last 2 or 3 segments . . . 83.

83. (88) Legs entirely dark, black or blackish, even the tibiae, when not entirely black, are at least dark brownish or with blackish scaling and not pale ochreous yellow . . . . . 84.

84. (87) Wings entirely tinged smoky or mauvish, the costal and basal infuscation dark sepia or blackish brown and with a mauvish tint, the squamae brownish and knobs of halteres brownish; spines on hind femora below and on hind tibiae black and spines on front tibiae above well developed; pubescence with the bristly hairs on face predominantly black and with only a few or without any pale intermixed ones, that on body above in known ♀♀ straw-coloured whitish as in ♂♂ or only slightly darker than the ♂♂ in front of wings on each side; interocular space in known ♀♀ slightly narrower, less than 4 times as broad as ocellar tubercle; antennal joint 1 slightly shorter, only about 4, or even less, times as long as joint 2 85.

85. (86) Larger species, about 7–9 mm. long, with a wing-length of about 6–8 mm.; pubescence above and below in both sexes sericeous whitish to straw-coloured whitish or that above pale sericeous yellowish, that on sides of venter towards apex pale ochreous yellowish, with the bristly hairs on face intermixed with pale ones, more so in ♀♀; wings very slightly tinged more darkly, the costal and basal darker infuscation slightly less extensive, not extending much into bases of first posterior and discoidal cells, the first posterior cell not very acute apically; halteres with the knobs pale brownish yellow to pale yellowish; scutellum always with a slight rufous tint or even reddish, especially in ♀♀; face slightly more produced and less bluntly rounded in front; antennal joint 3 slightly longer and distinctly thickened in basal half, the apical part being moderately slender; interocular space in ♂♂ slightly broader, about as broad as tubercle;

proboscis longer, about 4–4½ mm.; hind femora with about 6–9 spines below; hypopygium of ♂ (text-fig. 112) with a broadish clavate process on each side of aedeagus . . . ♂ ♀ *montanus* n. sp. (p. 438).

86. (85) Smaller species, about 5½ mm. long, with a wing-length of about 5 mm.; pubescence in ♂ silky whitish on thorax above, straw-coloured yellowish or even whitish on abdomen above, that on body below darker, even entirely dark velvety fulvous brownish or blackish brown, with the hairs and bristles in front of wings also blackish brown, with the bristly hairs on face entirely black and without any intermixed pale ones; wings tinged slightly less darkly, the costal and basal darker infuscation slightly more extensive, distinctly extending into basal halves of first posterior and discoidal cells, the first posterior cell distinctly more acute apically; halteres dark brownish, with dark brown knobs; scutellum entirely black; face slightly more rounded in front; antennal joint 3 distinctly shorter and more rod-like; interocular space in ♂ narrower, at narrowest part only about as broad as front part of tubercle; proboscis shorter, only about 2 mm. long; hind femora with only about 4 or 5 spines below; hypopygium of ♂ (text-fig. 108) with the aedeagus sickle-shaped, without a distinct ventral keel and without a process on each side . . . . . ♂ *fusciventris* n. sp. (p. 426).

87. (84) Wings greyish hyaline, only the costal and basal parts darker and more pale yellowish brown and less conspicuous, the squamae yellowish and knobs of halteres yellowish; spines on hind femora below and on hind tibiae yellowish brown to brownish, the spicules on front tibiae very small and poorly developed; pubescence with the bristly hairs on face with black and pale ones intermixed more or less in equal proportions, that on body of ♀ above distinctly more yellowish, with sericeous or brassy yellow gleams; interocular space in ♀ distinctly broader, at least 4 times as broad as tubercle; antennal joint 1 slightly longer, more than 4 times as long as joint 2. (Pubescence on abdomen with slender blackish brown to black bristles on sides of segments 2–4 in ♂ and 2–7 in ♀; hind femora with only about 4 or 6 spines below; hypopygium of ♂ (text-fig. 113) with a clavate process on each side of aedeagus.)

♂ ♀ *poweri* n. sp. (p. 440).

(Syn. = *nigripes* Bezz. nec Lw.)

88. (83) Legs not entirely dark or black, the front and middle femora in the ♂♂ blackened to beyond middle, if darkened in ♀♀, then only at extreme bases or in basal halves of front ones, with the tibiae in both sexes distinctly paler and pale yellowish or pale ochreous yellowish . . 89.

89. (90) Smaller species, about 6½ mm. long, with a wing-length of about 6 mm.; pubescence on body above less dense, straw-coloured whitish or yellowish, that on disc of thorax and on occiput being more sericeous whitish, that on body below whitish, with the hair on face less dense, with only a few and inconspicuous dark bristles on sides of abdomen in ♂ and without any in ♀; wings with the costal and basal infuscation darker and more brownish; antennae with joint 1 much shorter, less than 4 times as long as joint 2, with joint 3 also much shorter, comparatively broader and more rapidly thickened basally, the apical part shorter and thicker; interocular space in ♂ slightly narrower, not quite 2 times

as broad as front ocellus, only about 3 times as broad as tubercle in ♀; scutellum with the basal half at least black, in ♂ slightly more so, with the black base not angularly produced posteriorly; hind femora with only about 4 or 5 spines below . . ♂ ♀ *transvaalensis* n. sp. (p. 417).

90. (89) Larger species, about 7½–10 mm. long, with a wing-length of about 7–8 mm.; pubescence above much denser, distinctly more yellowish, yellowish sericeous to golden yellowish in ♀♀, more creamy yellowish in ♂♂, that on thorax in front, even in some ♂♂, more yellowish tinted, that on body below scarcely paler than above, only more creamy yellowish in some ♂♂, with the hair on face, in ♂♂ especially, very dense, with more numerous, longer and more conspicuous black bristles on sides of abdomen in both sexes; wings with the costal and basal infuscation more reddish brown or yellowish brown; antennae with joint 1 slightly longer, at least 4 times as long as joint 2, with joint 3, especially in ♂♂, longer and more gradually thickened basally, the apical part comparatively more slender and longer; interocular space in ♂♂ distinctly broader, about as broad as front part of tubercle, quite 2 times as broad as front ocellus, quite 3½ times as broad as tubercle in ♀; scutellum with the black basal part produced angularly towards hind margin, almost dividing the red into two maculae; hind femora with at least 5–9 spines below ♂ ♀ *brunnibasis* n. sp. (p. 495).

91. (76) Wings with the second basal cell much clearer, only feebly tinged and then distinctly not to the same extent as costal cell, base and first basal cell, being, however, distinctly tinged or more subopaque and slightly darker than the discoidal cell, with the infuscated basal part of wings more diffuse, less distinctly contrasting with, or delimited from, the rest of wing . . . . . 92.

92. (93) Wings comparatively darkly tinged mauvish or smoky, the costal cell, base and first basal cell being very dark mauvish brown; pubescence dull greyish in front and silvery whitish on abdomen from above, from side that on thorax is silvery whitish and greyish silvery white on abdomen in ♂♂, slightly more subgolden on disc of thorax in ♀♀, with the hair in front of wings pale brownish fulvous in both sexes, that on venter towards apex pale brownish fulvous in ♂♂, that on body below in both sexes silvery whitish, with the coxal bristles predominantly brownish to blackish brown, with the transverse bristles across abdomen in both sexes entirely brownish black; face and head below brownish or reddish brown; sides of abdomen in ♂♂ broadly reddish brown; legs in both sexes entirely blackish brown to black; antennal joint 3 club-shaped, broadest at about basal third, rapidly narrowed apically, more than the apical half being slender, with the first terminal joint well developed and comparatively long . . . . . ♂ ♀ *fumitinctus* n. sp. (p. 442).

93. (92) Wings distinctly less darkly tinged, only faintly and feebly mauvish, more often greyish hyaline for the greater part, with the costal and basal darker infuscated part also less dark mauvish brown, often more brownish to pale yellowish brown; pubescence above whitish, yellowish to golden yellowish, not distinctly or predominantly silvery white on abdomen above, the hair being straw-coloured yellowish, creamy yellowish to golden yellowish, with the hair and bristles in front of wings not fulvous

brown, that towards apex of venter in ♂♂, if darker, then yellowish or ochreous, that on body below ranging from more extensive silvery whitish to golden yellowish, with the coxal bristles never brownish or blackish brown, with the transverse bristles on abdomen in ♂♂ either not dark or blackish or only so laterally, those on greater part of disc above being whitish or yellowish, rarely with all or most of the bristles above in both sexes blackish, though these may sometimes be reddish brown to golden; sides of abdomen in ♂♂ entirely black, obscurely reddish or at least with the red much less extensive and confined to extreme sides; legs not entirely black and, if so, the scutellum is also black, more often predominantly yellow; antennal joint 3 not typically club-shaped, distinctly less rapidly narrowed from base, usually less than the apical half being slender, with the first terminal joint rarely long and conspicuous and if so the entire pubescence is not silvery whitish . . . . . 94.

94. (99) Smaller species, usually not more than 7 mm. long, with a wing-length of about 6½–7 mm.; scutellum entirely black or tending to be predominantly dark; legs entirely black or very dark blackish brown or the bases of the femora are black even in ♀♀, with the tibiae comparatively slender and the spicules on front ones above usually small and poorly developed and not very numerous, with fewer spines, about 4–6, on hind femora below, beginning at about middle or just before middle; interocular space in ♀♀ sometimes quite 4 times as broad as tubercle; sides of abdomen in ♂♂ without any red; wings with the basal comb poorly developed, the spines less dense and much shorter . . . . . 95.

95. (98) Legs in both sexes entirely very dark blackish or blackish brown, with the spines on hind femora below brownish; scutellum entirely black; interocular space in ♀♀ broader, more than 3, quite 4, times as broad as ocellar tubercle; pubescence on body below tending to be more yellowish or sericeous yellowish and that on body above in ♀♀ more brassy yellowish 96.

96. (97) Wings with the first posterior cell distinctly less acute apically; pubescence with fewer black bristly hairs on frons, antennae and face and with distinct black transverse bristles across hind margins of abdomen even if only a few in both sexes . . . . . ♂ ♀ *poweri* n. sp. (p. 440).

97. (96) Wings with the first posterior cell distinctly more acute or pointed apically; pubescence on head above and in front predominantly black or at least with much fewer yellowish hairs and without any trace of black transverse bristles on abdomen in both sexes . ♂ ♀ *faustus* n. sp. (p. 444).

98. (95) Legs predominantly yellowish in both sexes, only the bases of femora darkened, with the spines on hind femora black; scutellum with some obscure reddish and if darkened as in ♂ the legs at least are yellowish; interocular space in ♀ distinctly narrower, not much more than 3 times as broad as tubercle; pubescence on body below not much paler than above and that above in ♀ paler and more pale sericeous yellowish like that of ♂, with a few darkish bristles on sides of abdomen in some specimens . . . . . ♂ ♀ *transvaalensis* n. sp. (p. 417).

99. (94) Larger species, more than 7 mm. long and with a wing-length of more than 7 mm.; scutellum always with extensive and conspicuous red; legs never entirely black or dark, yellowish, but with the femora in ♂♂

sometimes blackened or darkened, with the tibiae less slender and the spicules above on front ones more numerous, longer and better developed, usually with more than 6, spines on hind femora below, beginning much nearer base; interocular space in ♀♀ not very much more than 3 times as broad as tubercle; sides of abdomen in ♂♂ usually with some red and, if not, then scutellum is at least distinctly red; wings with the basal comb distinctly larger, the spines denser and longer . . . 100.

100. (103) Abdomen above without any very dark, dark reddish brown or black bristles even laterally in both sexes, these bristles being, like the rest of them on thorax, scutellum and abdomen, yellowish, pale golden yellow or very pale reddish or reddish yellow; legs entirely pale ochreous to pale reddish yellow in both sexes . . . . . 101.

101. (102) Wings distinctly tinged mauvish, with the costal and basal darker part more darkly brownish yellow and more diffuse; pubescence above more uniformly and entirely pale golden yellow to golden, with that in front of wings scarcely deeper yellowish, that on body below scarcely paler, that on mesopleurae and sides of venter basally not being conspicuously silvery whitish, that towards apex on venter in ♂♂ pale ochreous yellow, with the transverse bristles on abdomen in both sexes entirely yellow; interocular space in ♂♂, at narrowest part, about as broad as front part of tubercle, a little more than 3 times as broad as tubercle in ♀♀, with the eyes in ♂♂ not flattened above and the upper facets only slightly coarser than lower ones; antennae with joint 1 very short, scarcely 2 times in ♂♂, and only about 2½ times as long as joint 2 in ♀♀, with 3 slightly shorter and more broadened in basal half, the apical slender part short, with the first terminal joint markedly long; proboscis short, about 3–5 mm. long; sides of abdomen in ♂♂ obscurely and not very extensively reddish; front femora with only about 1–3 spines in front and behind . . . . . ♂ ♀ *aureus* n. sp. (p. 446).
(And forms of it.)

102. (101) Wings only greyish hyaline, not distinctly tinged mauvish, with the costal and basal darker part only yellowish and much less extensive; pubescence above slightly deeper golden and with even slight fulvous gleams, especially in ♂♂, with that in front of wings distinctly deeper yellowish and even more orange fulvous, that on body below with an almost silvery white vertical band on mesopleurae and also with conspicuous silvery white hair on sides of venter near base, that towards apex of venter in ♂♂ often more fulvous or brownish golden, with the transverse bristles on abdomen slightly deeper and more reddish yellow; interocular space in ♂♂, at narrowest part, scarcely broader than front ocellus, in ♀ quite 3½ times as broad as tubercle, with the eyes slightly flattened above and with the upper facets very coarse; antennae with joint 1 longer, quite 3 times as long as joint 2, with 3 more elongate, less thickened basally and with the slender part long, with the first terminal joint not markedly long; proboscis longer, more than 5 mm. long; sides of abdomen in ♂♂ broadly and extensively reddened; front femora with more, at least more than 3 spines in front and behind
♂ ♀ *ventricosus* Bezz. (p. 449).
(Some forms of it.)

103. (100) Abdomen above always with some black or dark bristles, either with a few on sides even if only with 1 or 2 or with more numerous ones especially towards apex, with these bristles entirely black, dark brownish to dark reddish or reddish; legs with the femora in some ♂♂ blackened basally or to beyond middle and if entirely yellowish the sides of the abdomen at least with some blackish bristles . . . . . 104.

104. (111) Abdomen with the transverse bristles across hind margins of tergites above predominantly yellowish, dark yellowish brown, brownish or reddish and if dark blackish brown or blackish ones are present, these are inconspicuous and found only as a few or very few laterally on extreme sides and ventrally towards apex in both sexes and they are usually pale-tipped; pubescence predominantly brassy or golden yellowish: sides of abdomen in ♂♂ more extensively reddish; antennal joint 1 in ♀♀ with a tendency to be obscurely reddish or dark reddish brown on certain surfaces . . . . . 105.

105. (106) Larger and bulkier species, about 11–13 mm. long and with a wing-length of about 11–12 mm.; wings more vitreous hyaline, only the base, costal cell and first basal cell subopaquely yellowish or ochreous yellowish, with the veins paler yellowish brown or brownish; head with the eyes in ♂♂ distinctly flattened above and even in ♀♀ more flattened above, separated in ♂♂ by a narrower space, only about as broad as narrow front part of ocellar tubercle or even front ocellus; legs entirely yellowish in both sexes and even the tarsi scarcely darkened, with distinctly more numerous spines on middle femora below and with more, about 10–14 spines on hind ones below; sides of abdomen in ♂♂ more broadly or extensively reddish; pubescence on the whole deeper gleaming golden, with a more conspicuous and more contrasting band of sericeous whitish hair down middle of pleurae, the hair on face tending to be denser and less brush-like in front in ♂♂ and even more bushy in ♀♀, with fewer dark bristles laterally on sides of abdomen

♂ ♀ *ventricosus* Bezz. (p 449).
(Some forms of it.)

106. (105) Smaller and less bulky forms, about 6–11½ mm. long and with a wing-length of about 6–10 mm.; wings distinctly, though sometimes faintly, tinged mauvish, greyish mauvish, brownish or even reddish, the costal and basal parts slightly more brownish and if yellowish or ochreous wings are at least not hyaline, the veins usually darker or more reddish; head with the eyes in ♂♂ and ♀♀ not tending to be flattened above and in ♂♂ usually more broadly separated by width of ocellar tubercle and if narrowish the eyes are not flattened above; legs with the femora in ♂♂ at least darkened or blackened basally to a variable extent and if entirely yellowish the tarsi are darkened in both sexes, with much fewer spines on middle femora below and less than 10 on hind ones below; sides of abdomen in ♂♂ usually less broadly reddish on sides; pubescence, even if golden, gleaming less markedly and with either a less marked vertical band of whitish pubescence down middle of pleurae or with the whitish more diffused, with more numerous and sometimes more reddish-tinted bristles on sides of abdomen and with the hair on face tending to be concentrated brush-like in front and if not wings are at least tinged . 107.

107. (108) Pubescence shorter, with a more closely cropped-off appearance on disc of thorax, that on abdomen shorter, less shaggy, the bristles towards apex shorter and scarcely or not much longer than length of antennae, that on face, especially the darker elements, more concentrated brush-like or tuft-like in front, that on pleurae only slightly paler than above, not contrasting or with a more contrasting whitish vertical band down middle of pleurae, that on body above also sometimes more brassy or sericeous yellowish; head with the face much darker or black, with the proboscis shorter, only about 4–5 mm. long, the spinules below finer, with antennal joint 3 shorter, only a very little longer than or subequal in length to joints 1 and 2 combined, its inner margin at broadest part near base slightly bulging, ending apically in a scarcely visible and inconspicuous terminal basal element bearing a style; legs with the femora, even in ♀♀, slightly more darkened
♂ ♀ *bombycinus* var. *pallidispinis* n. (p. 410).

108. (107) Pubescence slightly longer, with a less closely shorn-off appearance on thorax, that on abdomen slightly longer, appearing more shaggy, the pubescence and bristles towards apex at least as long or longer than antennae, that on face slightly more dense, with apparently fewer dark bristly elements which do not tend to be concentrated brush-like or tuft-like in front, that on pleurae distinctly more extensively and more contrastingly whitish or with at least the middle part of pleurae vertically more whitish-haired, that on body above deeper and more gleaming golden; head with the face, genae and to a certain extent the head below yellowish or yellowish brown, with the proboscis longer, about 5–8 mm. long, the spinules below more visible, with antennal joint 3 relatively longer, appearing more humped above in basal half and ending apically in a distinctly longer and more conspicuous terminal basal element bearing a style; legs with the femora either entirely yellowish in both sexes or darkened basally in some ♂♂ to a lesser extent . . . 109.

109. (110) Wings distinctly more darkly tinged and more mauvish, the base and costal cell slightly darker and more brownish, the veins much darker and towards apical part almost black, the basal comb more strongly developed; pubescence slightly deeper gleaming golden above, with the sericeous whitish or whitish hair on pleurae more concentrated in a vertical band down middle of pleurae and with the darker bristles on abdomen or sides of abdomen darker and more brownish; head with the interocular space in ♂♂ broader and as broad as ocellar tubercle, with the proboscis slightly longer, about 7–8 mm. long, with antennal joint 1 relatively longer and quite 3, or a little more, times as long as 2 and with the terminal basal element of joint 3 longer; legs with the femora in ♂♂ at least entirely yellowish . . . . . ♂ *monticolanus* n. sp. (p. 411).

110. (109) Wings tinged distinctly reddish or reddish greyish, appearing clearer, the base and costal part distinctly more yellowish or ochreous yellowish, the veins much paler and more reddish, the basal comb much smaller; pubescence slightly paler golden above, with the sericeous whitish or more whitish pubescence on pleurae more extensive and more contrasting and with the darker bristles on abdomen paler and more reddish or even reddish; head with the interocular space in ♂♂ distinctly narrower and

only about as broad as front ocellus or front part of ocellar tubercle, with the proboscis slightly shorter and about 5–7 mm. long, with antennal joint 1 relatively shorter and only about, or scarcely, 3 times as long as 2 and with the terminal basal element of 3 slightly shorter; legs with the femora in ♂♂ at least darkened at bases

♂ ♀ *subcontiguus* n. sp. (p. 455).

111. (104) Abdomen with the transverse bristles across hind margins of tergites always with conspicuous and dark blackish brown or black ones, either on most of the tergites laterally and towards apex or even discally or they are more numerous on at least some of the tergites laterally in both sexes; pubescence not always golden and if golden the darker elements on abdomen are more blackish and more conspicuous; sides of abdomen in ♂♂ usually less extensively or more obscurely reddish, sometimes entirely black; antennal joint 1 entirely black in both sexes and if tending to be yellowish brownish the darker bristles on abdomen are darker and more numerous . . . . . 112.

112. (123) Antennal joint 1 distinctly shorter, rarely about 4 times as long as joint 2, more often much shorter; legs with the femora in ♂♂ either entirely black or more extensively blackened to much beyond middle and their bases tending to be darkened even in some ♀♀; sides of abdomen in ♂♂ usually with some red, even if only very obscurely; pubescence with the hair on pleural parts, head below and sides of venter on the whole paler, more whitish, more sericeous whitish or at least more conspicuously or more markedly contrasting with that on body above, with the darker or black transverse bristles on abdomen, especially in ♀♀, encroaching more on the disc above towards apex; wings, apart from the basal and costal infuscation, tending to be more distinctly, even though faintly, tinged reddish, mauvish or brownish mauvish and usually with the discoidal cell more truncate apically, the apical cross vein rarely very much shorter than discal cross vein; hypopygium of ♂♂ with the process on each side of aedeagus very much flattened and broadened, leaf-like or racket-shaped in apical part, where it is also slightly depressed and spoon-like . . . . . 113.

113. (118) Pubescence on body distinctly longer, more shaggy, that on frons, antennae and face longer, finer and more bushy, especially in ♂♂, that on thorax above not with a closely cropped appearance, that on abdomen much more shaggy and longer, that on body below not markedly contrasting with that on body above, that in front of wings and, in ♂♂, that towards apical part of venter not or less distinctly deeper yellowish or ochreous; head with the eyes separated above in ♂♂ by a slightly broader space, about as broad as front part of ocellar tubercle or broader than length of antennal joint 2, the upper facets thus less coarse, with antennal joint 1 relatively longer, at least 3 times as long as 2; legs more slender and with longer hairs on femora below . . . . . 114.

114. (115) Pubescence on body above gleaming pale sericeous yellowish to yellowish, that on sides of abdomen with a slightly deeper yellowish tint, that on antennae and face even slightly longer in ♂, with fewer dark bristles on sides of abdomen in ♂, that on body below paler than above; wings less darkly tinged and more reddish mauvish, the veins paler and

more reddish, the basal comb slightly larger; scutellum more extensively reddish and sides of abdomen in ♂ also with more reddish, the legs with the femora even in ♂ less extensively darkened and then more sienna brownish; head with the interocular space in ♂ slightly narrower, the inner margins of eyes bounding this space and tubercle much longer, with antennal joint 1 distinctly longer and nearly 4 times as long as 2; hypopygium of ♂ (text-fig. 118) . . . ♂ *altivolans* n. sp. (p. 450).

115. (114) Pubescence above paler and gleaming more sericeous whitish in both sexes, that below scarcely paler, that on sides of abdomen in ♂♂ also more whitish, and even in ♀♀ only feebly tinted yellowish, the entire pubescence thus more whitish, that on antennae and face slightly shorter, with more numerous and more conspicuous blackish or black bristles on sides and towards apical part of abdomen in both sexes; wings slightly darker, the costal and basal part darker subopaquely brownish, the veins darker and the basal comb smaller; scutellum almost entirely black in ♂♂ or obscurely reddish in both sexes and sides of abdomen in ♂♂ entirely black and legs in both sexes tending to be darker, the femora at least much darker in both sexes; head with the interocular space on vertex in ♂♂ slightly broader, the inner margins of eyes bounding the tubercle much shorter, with antennal joint 1 shorter, only about 3, or a little more, times as long as 2; hypopygium of ♂ (text-fig. 112) . 116.

116. (117) Wings on the whole darker, more distinctly subopaquely mauvish or smoky mauvish, with the basal and costal darker brownish infuscation slightly more extensive, extending more into second basal cell; pubescence without any distinct more yellowish hairs on each side in front of wings and without a few intermixed dark ones in this tuft ♂ ♀ *montanus* n. sp. (p. 438).

117. (116) Wings less darkly mauvish, with the basal and costal part slightly paler brownish, the second basal cell much clearer; pubescence with a distinct more yellowish tuft in front of wing bases, containing distinct intermixed blackish hairs . . . . ♂ *montanus* (slight var.) (p. 440).

118. (113) Pubescence on body distinctly much shorter, not shaggy, that on frons, antennae and face shorter and more brush-like, that on thorax above with a shorn-off appearance in ♂♂ especially, that on abdomen less shaggy and shorter, that on body below more markedly contrastingly whitish than above, that in front of wings and, in ♂♂, that towards apex of venter deeper or more ochreous yellowish; head with the eyes more narrowly separated above in ♂♂ by a space only about as broad or a little broader than front ocellus or not broader than antennal joint 2 is long, the upper facets thus coarser, with antennal joint 1 relatively shorter, slightly less, or distinctly less, than 3 times as long as 2; legs stouter and with shorter hairs on femora below . . . . 119.

119. (120) Legs with the femora almost entirely or entirely black in ♂♂, blackened to much beyond middle in ♀♀; pubescence predominantly sericeous whitish in ♂♂, sericeous whitish to creamy yellowish above in ♀♀, that towards apical part and sides of venter only feebly yellowish in ♂♂, not markedly ochreous yellowish to ochreous brownish, that on pleurae, pectus and sides of venter basally not so contrastingly gleaming sericeous whitish . . . . . ♂ ♀ *affinis* var. *discrepans* n. (p. 455).

120. (119) Legs with only the bases or basal halves of femora black in ♂♂, or at least with the apical parts more yellowish, only blackened or darkened at bases in ♀♀, or a greater part of the apices yellowish or even entirely yellowish in ♀♀; pubescence predominantly creamy yellowish to even golden yellowish above in ♂♂ and yellowish or golden in ♀♀, that towards apex and sides of venter in ♂♂ distinctly more ochreous yellowish to ochreous brownish, that on pleurae, pectus, metapleural tuft and sides of venter basally more gleaming sericeous whitish, thus more contrasting with the yellowish pubescence and that in front of wings on each side more distinctly yellowish to orange in some specimens . . . . . 121.

121. (122) Interocular space in ♂♂ slightly broader and narrowest part much shorter than length of ocellar tubercle; legs with the femora in both sexes more extensively darkened basally; pubescence slightly longer, that on antennae predominantly black, that on disc of thorax with a less shorn-off appearance in ♂♂ at least and that on disc in ♀♀ also slightly longer, with the bristles on abdomen distinctly longer in both sexes and black in ♀♀; wings with the basal infuscation slightly darker brownish and the veins also darker; hypopygium of ♂ (text-fig. 119, *a* and *b*) . . . . . ♂ ♀ *affinis* n. sp. (p. 452).

122. (121) Interocular space in ♂ distinctly narrower and narrowest part subequal in length to tubercle; legs in ♂ at least only darkened at extreme bases of femora, entirely yellowish in ♀♀; pubescence shorter, that on antennae below with more numerous yellowish hairs, that on disc of thorax in ♂ with a more cropped-off appearance and that in ♀♀ also apparently shorter, with the bristles on abdomen apparently shorter in both sexes and reddish in ♀♀; wings with the basal infuscation slightly paler brownish and the veins paler reddish brown to reddish; hypopygium of ♂ (text-fig. 121) . . . . ♂ ♀ *subcontiguus* n. sp. (p. 455).

123. (112) Antennal joint 1 distinctly longer, at least 4 or more times as long as joint 2; legs with the femora in ♂♂ predominantly yellowish, only the bases being blackened, entirely yellowish in ♀♀; sides of abdomen in ♂♂ entirely black like rest of abdomen; pubescence with the hair on pleural parts and even base of venter less conspicuously white and contrasting, with the black transverse bristles on abdomen only extending to the midline above on last few segments (5–7); wings more distinctly greyish hyaline, not distinctly tinged mauvish, only the base, costal cell, first basal cell and extreme base (to a variable extent) being yellowish brown, brownish or mauvish brown, with the discoidal cell usually more subacute apically, the apical cross vein being usually shorter than the discal cross vein; hypopygium in ♂♂ with the process on each side of aedeagus slender and narrow throughout, its apical part not conspicuously broadened and leaf-like . . . . . 124.

124. (127) Interocular space in ♂♂ much narrower, only about as broad as front ocellus, tending to be only about 3 times as broad as tubercle in ♀♀; antennae with joint 1 slightly shorter, only about 3½–4 times as long as joint 2, with joint 3 less rapidly narrowed towards apex or with a shorter apical slender part, the joint on the whole shorter; wings tending to be distinctly darker and more brownish at base, in costal cell, first basal cell

and even in second basal cell to a variable extent, with the veins much darker, very dark blackish brown to almost black . . . . 125.

125. (126) Pubescence on body predominantly more yellowish, creamy yellowish to pale yellowish golden in both sexes, that towards apex of abdomen only slightly paler and creamy whitish to yellowish; scutellum usually more extensively reddened or entirely reddish; legs with the femora in ♂♂ only darkened at extreme bases in some specimens, the hind ones being entirely yellowish . . ♂ ♀ *silvaticus* var. *turneri* n. (p. 500).

126. (125) Pubescence on body entirely or predominantly whitish, straw-coloured whitish to pale straw-coloured yellowish in both sexes, that towards apex of abdomen in ♂♂ and even ♀♀ distinctly more white; scutellum with a tendency to be less red and sometimes only so discally; legs with the femora in ♂♂ often darkened to about middle

♂ ♀ *silvaticus* var. *turneri* n. (p. 500).
(Pale form.)

127. (124) Interocular space in ♂♂ slightly broader and distinctly broader than front ocellus, about 1½–2 times as broad as front ocellus, tending to be a little more than 3 times as broad as tubercle in ♀♀; antennae with joint 1 distinctly longer, about 4–5, or more, times as long as joint 2, with joint 3 usually distinctly more rapidly narrowed apically, the apical slender part usually more slender and longer; wings either less dark in costal cell and base or, when distinctly darkish, it is less conspicuous, with the veins slightly less dark and more brownish

♂ ♀ *silvaticus* n. sp. (p. 497).

128. (75) Wings distinctly less extensively or diffusely infuscated at base, this whitish, pale yellowish white, pale yellowish, pale brownish yellow to brownish basal infuscation confined to the base, costal cell, first basal cell and often the alula, never extending into bases of first posterior and discoidal cells and with the second basal cell always entirely or for the greater part clear or hyaline or greyish hyaline like the rest of the wings, never darker than discoidal cell, with the rest of wing more often hyaline or greyish hyaline, rarely distinctly tinged mauvish or brownish mauvish 129.

129. (172) Abdomen in both sexes entirely with whitish, yellowish, golden yellowish, reddish to reddish brown bristles discally or on sides, without any conspicuous or extensive black bristles on sides and, if such are present, only very few, 1 or 2, are found laterally near apex in ♂♂ and a few in ♀♀ also confined to sides apically . . . . . 130.

130. (133) Legs with all the spines and spicules entirely yellowish or pallid; pubescence entirely brilliantly gleaming silvery whitish above and entirely or predominantly so below, without any dark or blackish bristles or bristly hairs on any part of body, without distinct stouter bristly hairs on face or on frons; eyes in known ♂ in actual contact above for a distance at least as long as tubercle, the upper facets very much coarser than lower ones . . . . . 131.

131. (132) Legs entirely very dark or black, the spicules very poorly developed, especially on front tibiae and with the 9–10 spines on hind femora below slightly flattened and adpressed to femora; antennae with joint 1 relatively longer, quite 3 times as long as 2 and with 3 quite 1½ times as

long as 1 and 2 combined; pubescence on the whole short, fine and pubescent; slightly larger, about 8 mm. long and with a wing-length of about 8 mm. . . . . ♂ *argyropogonus* n. sp. (p. 458).

132. (131) Legs with only the femora dark blackish brown, the tibiae being distinctly yellowish, the spicules on tibiae less poorly developed, and the 3–4 spines on hind femora more slender, not flattened and not slightly adpressed to femora; antennae with joint 1 relatively shorter, only a little more than 2 times as long as 2 and with 3 also shorter and only a little longer than 1 and 2 combined; pubescence on the whole slightly longer and more shaggy; slightly smaller, about 5 mm. long, with a wing-length of 5 mm. . . . . ♀ *candidus* n. sp. (p. 459).

133. (130) Legs with all the spines and spicules not entirely yellowish, predominantly black, and those on hind tibiae always black and even some on front and middle tibiae black; pubescence not entirely silvery whitish above and below, always with some or numerous intermixed dark or black bristly hairs or bristles on frons in ♀♀ and on face in both sexes, and even with blackish or dark transverse bristles on abdomen, always with some stouter hairs or bristles on frons and face; eyes in ♂♂ never in actual contact above, either very narrowly separated or widely separated, the upper facets not so obviously and conspicuously coarser than lower ones . . . . . 134.

134. (139) Wings distinctly, though faintly, sometimes more deeply, tinged mauvish or mauvish brown throughout, with the base, costal cell and first basal cell slightly darker and more subopaquely or opaquely yellowish or pale yellowish brown; antennal joint 1 much shorter, only about 2–3 times as long as joint 2 . . . . . 135.

135. (138) Antennae with joint 3 comparatively shorter, equal or subequal to, or only very slightly longer than 1 and 2 combined, more rapidly broadened basally, especially in ♀♀, and more so along inner or lower side, thus forming a subangular prominence just before middle, with the first terminal joint bearing style small and insignificant; legs with the femora in ♂♂ always darkened or blackened basally to even beyond middle and even darkened in ♀♀ along front and upper surfaces, with the tarsi and even certain surfaces of the tibiae darkened; interocular space in ♂♂ broader, about as broad as ocellar tubercle; pubescence with the mauvish black bristly hairs on face slightly shorter but more densely concentrated and brush-like on face in front and the hair on frons in ♀♀ not reddish or orange; hypopygium of ♂ (text-fig. 101) . . . 136.

136. (137) Pubescence on body tending to be predominantly yellowish, brassy to golden yellowish, with some or numerous transverse bristles on sides of abdomen pale reddish, reddish yellow to reddish brown in both sexes; legs with the femora in ♂♂ usually less extensively darkened and less so in ♀♀, even entirely yellow in ♀♀ and usually with more than 5 spines on hind ones below; sides of abdomen in ♂♂ usually more extensively and broadly red; scutellum tending to be more extensively red ♂ ♀ *bombycinus* var. *pallidispinis* n. (p. 410).

137. (136) Pubescence on body tending to be paler, often very pale sericeous yellowish to whitish, with all the bristles on side of abdomen paler, whitish or yellowish; legs with almost, or the entire, femora in ♂♂

blackened and even the tibiae more darkened, the femora in ♀♀ often also entirely dark and even blackish in basal halves, usually with fewer spines, 4–6, on hind ones below; sides of abdomen in ♂♂ scarcely reddened; scutellum tending to be much more obscurely reddened discally, often almost entirely dark in ♂♂

♂ ♀ *bombycinus* n. sp. (Variety) (p. 407).

138. (135) Antennae with joint 3 longer and distinctly longer than 1 and 2 combined, less rapidly broadened basally and not markedly subangularly prominent below nearer base, with the first terminal joint usually markedly elongate and conspicuous; legs in both sexes entirely pale ochreous yellow, the femora not or scarcely darkened along certain surfaces and only the apical parts of tarsi darkened; interocular space in ♂♂ much narrower, only about as broad as narrow front part of tubercle; pubescence on body above and below entirely deep golden yellow and all the bristles on abdomen golden yellow, with the black bristly hairs on face slightly longer and more distributed on face and not tending to be concentrated in front and depressed pubescence on frons and face in ♀♀ deep orange golden; hypopygium of ♂ (text-fig. 116) ♂ ♀ *aureus* n. sp. (p. 446).

139. (134) Wings only feebly subopaquely greyish hyaline or hyaline, not tinged mauvish throughout, though the base and costal parts may be subopaquely yellowish or even darker; antennal joint 1 usually slightly longer and longer than 3 times as long as joint 2 . . . . . 140.

140. (161) All or the majority of the spines or spicules in the upper outer row on the front tibiae black, not pallid or yellowish like those in the lower outer row; spines on hind femora below, in both sexes, entirely black; transverse rows of bristles on abdomen rarely without some black ones laterally, especially towards apex of abdomen in ♀♀ and, in majority of species, with a few, even if only 1 or 2, inconspicuous ones laterally towards apex in ♂♂ also . . . . . 141.

141. (152) Abdomen without any or with only 1 or 2 or very few, inconspicuous dark or blackish, pale-tipped bristles laterally near apical end in ♂♂ and without any or with a few more pale-tipped black ones in ♀♀ laterally and more or less confined to apical part of abdomen . . . 142.

142. (145) Legs entirely very dark or black in both sexes or the femora in ♂♂ at least almost entirely black or the apical parts of hind tibiae and the entire hind tarsi in ♀♀ at least are blackish; pubescence with the bristly hairs on frons, antennae and face predominantly or almost entirely black, without any black or darkish transverse bristles on abdomen in both sexes . . . . . 143.

143. (144) Legs entirely very dark or black in both sexes, with the spines on hind femora below more brownish and with the spicules on front tibiae above more poorly developed; wings distinctly with yellowish brown in costal cell, base, first basal cell and even slightly in second basal cell, with the first posterior cell distinctly more acute apically; scutellum entirely black and sides of abdomen also entirely black; interocular space in ♀ quite 4 times as broad as tubercle; antennal joint 1 relatively longer, quite or nearly 4 times as long as 2; proboscis only about 3 mm. long . . . . . ♂ ♀ *faustus* n. sp. (p. 444).

144. (143) Legs with the femora black in ♂ and the apices of hind tibiae and the hind tarsi darkened in both sexes, with the spines on hind femora below black and with the spicules on front tibiae well developed; wings with only the base, costal cell and part of first basal cell subopaquely very pale yellowish brownish or yellowish, with the first posterior cell distinctly less acute and normal apically; scutellum with red discally and sides of abdomen in ♂ slightly reddish; interocular space in ♀ less than 4 times as broad as tubercle; antennal joint 1 shorter, only about, or scarcely, 3 times as long as 2; proboscis longer, about 3½–4 mm. long

♂ ♀ *salticolus* n. sp. (p. 460).

145. (142) Legs entirely yellowish in both sexes or if darkened in ♂♂ then only at base, with the apical parts of hind tibiae never blackened and at least basal parts of tarsi yellowish even in ♀♀; pubescence with distinctly more numerous yellowish bristly hairs on head in both sexes, usually with a few or some darker and even blackish bristles on sides of abdomen even if only towards apex in ♀♀ . . . . . 146.

146. (147) Larger species, 11–13 mm. long, with a wing-length of about 11–12 mm.; pubescence above deeper and more uniformly golden yellow or even more fulvous, with deep golden gleams, that towards apex of abdomen in ♂♂ less whitish and also more golden, that in front of wings deep golden yellow to orange golden or fulvous, with a conspicuous contrasting vertical band of silvery white pubescence on mesopleural part and also with a conspicuous silvery whitish patch on each side at base of venter; wings slightly more greyish hyaline, with the costal and basal parts more pale yellowish brown, with the basal comb large and strongly developed; sides of abdomen in ♂♂ very broadly and extensively red; interocular space in ♂♂ about as broad as, or scarcely broader than, front ocellus; eyes in ♂♂ distinctly more flattened above and the upper facets very coarse; legs with the front and middle femora armed below with numerous spines in front and behind in both sexes and with more numerous, about 9–14, spines on hind ones below

♂ ♀ *ventricosus* Bezz. (p. 449).
(Some forms of it.)

147. (146) Smaller species, about 6½–11½ mm. long, with a wing-length of about 6–10 mm.; pubescence above ranging from sericeous whitish to pale yellowish sericeous in ♂♂, pale creamy yellowish to pale golden yellowish in ♀♀ and with sericeous or brassy gleams, that on apical part of abdomen in ♂♂ paler and often almost white, that on sides in front of wings only slightly deeper or more yellowish than above, that on pleural parts and base of venter either uniformly paler yellowish or whitish, without distinct contrasting bands or very conspicuous silvery whitish hair on pleurae and venter; wings entirely hyaline or vitreous hyaline, with only the base, costal cell and first basal cell very pale whitish or yellowish, with the basal comb less strongly developed; sides of abdomen in ♂♂ entirely black or very obscurely and indistinctly reddened; interocular space in ♂♂ slightly broader, about as broad as front part of tubercle, broader than front ocellus; eyes in ♂♂ not markedly flattened above and with the upper facets not very conspicuously coarser than lower ones; legs without or with only 1, or at least much fewer, spines in front

and behind on front and middle femora and with usually fewer, not more than 10, spines on hind ones below . . . . . 148.

148. (151) Pubescence shorter, denser and, on thorax above, comparatively shorter, varying from whitish sericeous to creamy yellowish or to brassy and even golden yellowish, tending, however, to be more constantly creamy yellowish or pale brassy yellow, with the bristly black hairs on frons and sides of face in ♂♂ distinctly shorter or about subequal to antennal joint 3, without any or with only a very few dark bristles laterally and ventrally towards apex of abdomen in both sexes; antennal joint 3, including terminal joints, always longer than 1 and 2 combined, thickened near base and very gradually narrowed to apex; legs comparatively thicker; hypopygium of ♂♂ with the arch, formed by lateral rami from basal parts, at base of aedeagus, well developed and raised, with the clavate process on each side of aedeagus shorter and the lateral struts less developed . . . . . .149.

149. (150) Larger forms, 8–11½ mm. long, with a wing-length of about 8½–10 mm.; proboscis more than 3 mm. long; antennal joints 1 and 2 black and 3 longer and comparatively more slender apically, with the first terminal joint well developed; legs with the front femora more often armed with a few small spines in front and behind; sides of abdomen in ♂♂ entirely black; face in front with denser and more numerous yellowish hairs in ♂♂; interocular space in ♂♂ comparatively broader, at narrowest part about as broad as front part of ocellar tubercle; wings broader and distinctly much broader towards base than apically; hypopygium of ♂ with the inner apical angle or process not projecting beyond apices of basal parts, with the basal strut very broad, racket-shaped and with a deep angular dorsal sinuosity . . . ♂ ♀ *mixtus* Wied. (p. 501). (Variety of it.)

150. (149) Smaller form, about 6½–8 mm. long, with a wing-length of about 6–7 mm.; proboscis shorter, about 3 mm. long; antennal joints 1 and 2 more brownish, and 3 shorter, thicker apically and with the first terminal joint minute and scarcely discernible; legs with the front femora unarmed; sides of abdomen in ♂♂ often distinctly, though feebly, reddish towards apex; face in front with the hair distinctly less dense, with fewer and more inconspicuous yellowish hairs; interocular space comparatively narrower, at narrowest part subequal to or scarcely broader than front ocellus; wings distinctly narrower and towards base scarcely much broader than apically; hypopygium of ♂ with the inner apical angle slightly more developed and distinctly projecting beyond apices of basal parts, with the basal strut narrower and its dorsal sinuosity less deep and angular . . . ♂ ♀ *marshalli* Par. (p. 462).

151. (148) Pubescence distinctly longer, more recumbent and slightly less dense, longer on thorax above, paler, more whitish to straw-coloured whitish or yellowish, that on abdomen in ♂♂ whiter towards apex, with the black bristly hairs on frons and face in ♂♂ distinctly longer than antennal joint 3, without any or with more darkish bristles towards apex of abdomen, especially in ♀♀; antennal joint 3, including terminal joints, more often distinctly shorter than 1 and 2 combined, distinctly more club-shaped, comparatively much broader in basal third or fourth, from

where they are slightly more rapidly narrowed apically to slightly beyond middle; legs comparatively more slender and the tibiae longer; hypopygium of ♂ with the arch at base of aedeagus less raised and less developed, with the clavate process, on each side of aedeagus, longer and projecting more . . . . . ♂ ♀ *anthophilus* n. sp. (p. 466).

152. (141) Abdomen always with a good few, a large number or at least with more numerous and more conspicuous, more than 1 or 2, black or dark bristles laterally and ventrally on last few segments in ♂♂, always with more and a variable number of distinct and conspicuous black bristles on sides towards apex or from segments 2–6 in ♀♀ . . . . . 153.

153. (154) Scutellum entirely black; legs in both sexes entirely black or very dark blackish brown, with the spines on hind femora below and on hind tibiae yellowish brown to brownish, with the spicules on front tibiae above small, sparse and comparatively poorly developed; face apparently more truncate and slightly less conical in front; interocular space in ♀♀ very broad, at least 4 times as broad as tubercle; antennal joint 3 in ♂♂ at least short and rod-like; wings more greyish hyaline, with the costal and basal darker parts darker and more brownish, slightly more extensive and even slightly extending into second basal cell, more distinctly infuscated in ♂♂; hind femora with only about 4 or 6 spines below . . . . . ♂ ♀ *poweri* n. sp. (p. 440).

154. (153) Scutellum red or reddish; legs not entirely black or dark, entirely yellowish or with the femora darkened only at extreme bases in some ♂♂, with the spines on hind femora and tibiae black, with the spicules on front tibiae above as well developed as on middle ones, also more numerous; face slightly more conically prominent in front; interocular space in ♀♀ narrower, distinctly less than 4 times as broad as tubercle; antennal joint 3 longer and even very long, distinctly thickened basally and gradually narrowed apically; wings more hyaline, with the costal and basal parts very pale yellowish white to yellowish, the yellowish confined to costal cell, base and first basal cell, not extending into second basal cell; hind femora usually with more than 5 spines below 155.

155. (156) Larger form, about 11–13 mm. long, with a wing-length of about 11–12 mm.; pubescence deeper and more distinctly deep golden or orange golden, with golden gleams, that on sides in front of wings, especially in ♂♂, also deeper golden and more orange fulvous, that on mesopleural part with a conspicuous vertical band of silvery whitish hair and that at base of venter similarly silvery white, with the transverse bristles on abdomen slightly deeper yellowish in ♀♀ and in both sexes often with more blackish or dark ones laterally and apically; sides of abdomen in ♂♂ very broadly red; interocular space in ♂♂ very narrow, as broad as, or scarcely broader than, front ocellus; eyes in ♂♂ more distinctly flattened above and with the upper facets very coarse; wings slightly more greyish hyaline in certain lights and considerably broader at base in ♂♂, with the costal and basal darker parts deeper yellowish to pale yellowish brown, slightly more extensive and extending into extreme bases of second basal and anal cells, with the basal comb more strongly developed and the squamal fringe more orange fulvous; legs with more

numerous spines in front and behind on front and middle femora and with slightly more numerous, 9–14, spines on hind ones below
Certain ♂♂ ♀♀ *ventricosus* Bezz. (p. 449).

156. (155) Comparatively smaller and less bulky species, about 6–11½ mm. long, with a wing-length of about 5–10 mm.; pubescence ranging from almost sericeous whitish to pale creamy yellowish or straw-coloured yellow in ♂♂, creamy yellowish, brassy yellow to pale golden yellowish in ♀♀ and with more sericeous gleams in both sexes, that on sides in front of wings not or not so fulvous or orange golden, that on pleural parts and sides of venter basally more uniformly paler yellowish or more whitish and without a very distinct vertical silvery band, with the transverse bristles on abdomen, in ♀♀ at least, paler and more whitish or pale yellowish and with fewer black ones intermixed laterally in both sexes; sides of abdomen in ♂♂ entirely black or only very indistinctly and obscurely reddish towards apex; interocular space in ♂♂ broader, a little or much broader than front ocellus; eyes in ♂♂ not very visibly flattened above and with the upper facets only a little more coarse than lower ones; wings entirely hyaline or vitreous hyaline, scarcely broader basally even in ♂♂ and the apex is more rounded, with the costal cell, base and first basal cell being alone subopaquely whitish or feebly yellowish white, with the basal comb less developed and even poorly in some forms, with the squamal fringe not orange fulvous; legs with fewer spines in front and behind on front and middle femora and hind ones also with fewer, usually less than 10, spines below . . . 157.

157. (160) Slightly larger forms, about 7½–11½ mm. long, with a wing-length of about 7–10 mm.; proboscis longer, more than 3 mm. long; antennae darker and more blackish brown or black; face and head below black; frons in ♂♂ with the central furrow more or less well developed and distinct throughout its length, with the frontal triangle in ♂♂ larger and broader, the inner margins of eyes very rapidly diverging apically, with the distance across bases of antennae equal to or subequal to width of eyes at same level; dark bristly hairs on frons and face black in ♂♂ and very dark blackish brown to black in ♀♀, that on face in front denser and predominantly yellowish in ♀♀; black bristles on abdomen in ♀♀ present only on sides; front femora armed or unarmed below . . . 158.

158. (159) Legs with the femora in ♂ blackened to middle or to beyond middle, without any apical spines above on front and middle femora, the front ones unarmed below and the hind ones with about 5–7 spines below; interocular space in ♂ slightly broader, at least 2 times as broad as front ocellus, with the inner margin of eye from hind angle to point of divergence in front much shorter, equal to or subequal to 2 times narrowest part of interocular space; antennae with joint 1 more than 4 times as long as joint 2, with 3 shorter, less thickened basally and more rod-shaped; pubescence on body above and below more silvery whitish and that on abdomen above distinctly purer silvery white and the pectus also with whiter hair; wings with the basal comb more feebly developed, the basal spines being much shorter than length of first antennal joint, with a tendency for discoidal cell to be more obtuse or truncate apically
♂ *deceptus* n. sp. (p. 506).
(Karoo-form det. *albidus* Bezz. nec Lw.)

159. (158) Legs with the femora in ♂♂ as in ♀♀ entirely yellow or only slightly darkened at extreme bases, more often with a few small spines above apically on front and middle femora, the front ones often armed below with 1 or 2 spines in front and behind and the hind ones usually with about 5–9 spines below; interocular space in ♂♂ distinctly narrower, less than 2 times as broad as front ocellus, with the inner margin of eye, on each side of tubercle, from hind angle to point of divergence anteriorly distinctly much longer than 2 times the interocular space; antennae with joint 1 only about 4, or less than 4, times as long as joint 2, with 3 longer and distinctly more thickened basally and less rod-shaped even in ♂♂; pubescence above and below more creamy yellowish or even yellowish in ♂♂, more golden yellowish in ♀♀, that on abdomen above in ♂♂ more creamy yellowish and that on pectoral part, even in ♂♂, less silvery whitish; wings with the basal comb better developed, the spines being at least equal to or subequal to length of first antennal joint, with the discoidal cell tending to be less obtuse and often distinctly more subacute apically . . . . ♂ ♀ *mixtus* Wied. (p. 501).
(Some forms of it.)

160. (157) Slightly smaller form, about 6–7 mm. long, with a wing-length of about 5–6½ mm.; proboscis much shorter, 2½–3 mm. long; antennae paler and more reddish brown; face paler and more reddish brown; frons in ♂ with the central furrow less distinct and indicated only posteriorly, with the frontal triangle in ♂ smaller, the inner margins of eyes less rapidly diverging apically, the distance across bases of antennae being distinctly much less than width of eyes at same level; bristly hairs on frons and face in ♂ brownish or reddish purple and reddish or fulvous brown in ♀, that on face in front less dense, being predominantly more orange to orange fulvous, especially in ♀; black or dark bristles on sides of abdomen in ♀ at least more numerous and even found discally above on segment 6; front femora unarmed below
♂ ♀ *exiguus* n. sp. (p. 464).
(Syn. = *ctenopterus* Bezz. nec Mik.)

161. (140) All or the majority of the spines or spicules in the upper outer row on the front tibiae pallid or yellowish like those in the lower outer row; spines on hind femora below, especially in ♀♀, more often also with a few or a large number of pallid or yellowish ones; transverse rows of bristles on abdomen above entirely whitish or yellowish in both sexes, rarely dark and if so they are more reddish, pale reddish brown to brownish . 162.

162. (165) Pubescence whitish sericeous, straw-coloured whitish or yellowish to very pale creamy yellowish in both sexes, that on abdomen towards apex in both sexes always almost entirely white, with the transverse bristles on abdomen in both sexes entirely white or whitish, only those towards apex in some ♀♀ sometimes slightly brownish, but without any golden ones; sides of abdomen in known ♂♂ entirely black; legs with the femora, in known ♂♂, blackened to much beyond middle . . . . 163.

163. (164) Pubescence entirely whitish sericeous, straw-coloured to pale creamy yellowish, with the transverse bristles on abdomen in both sexes entirely white or whitish, that on pleurae and pectus, sides of venter, in metapleural tuft and in squamal fringe distinctly whiter; wings with a

distinct, but faint, subopaquely whitish tint, with extreme base subopaquely whitish to very pale yellowish white; face in ♀♀ at least with comparatively fewer black hairs, the pale ones predominating and are also denser, with that in ♂♂ even denser, black, more greyish in front due to intermixed pale ones; legs with the spines on hind femora below, especially in ♀♀, often with some or a large number of pallid or whitish ones; antennae black . . . ♂ ♀ *xerophilus* n. sp. (p. 467).

164. (163) Pubescence more distinctly straw-coloured whitish or yellowish, with the transverse bristles on abdomen in ♀ at least not entirely white, brownish on sides and towards apex, hair on pleurae and pectus, sides of venter much duller and inclining more towards straw-coloured yellowish, that in metapleural tuft and squamal fringe more distinctly creamy yellowish; wings more vitreous hyaline, less distinctly tinted whitish, more subopaquely and feebly reddish, with the extreme base slightly more pale ochreous yellow; face in ♀ with slightly more numerous very dark reddish brown hairs, with fewer pale ones which are distinctly more whitish and less dense; legs with 1 or 2 reddish yellow or brownish spines in addition to blackish ones; antennae with joint 3 more brownish ♀ *nigribarbus* v. *falsus* n. (p. 485).

165. (162) Pubescence more distinctly yellow, yellow sericeous to pale golden yellow and even deep lemon yellow to ochreous yellow, not whitish, that on abdomen apically in both sexes pale yellowish to yellow, with the transverse bristles on abdomen in both sexes entirely yellow or golden and in some ♀♀ reddish yellow to brownish or reddish near apex, the rest of these, however, entirely yellow; sides of abdomen in ♂♂ always with some distinct red or reddish; legs entirely yellow or only darkened in basal halves of femora in some ♂♂ . . . . . 166.

166. (169) Antennae almost entirely pale reddish brown or yellowish in both sexes, with the third joints, if darker, distinctly paler reddish brown or brownish, not distinctly black; pubescence slightly paler, more sulphur yellow to pale golden yellow, with the hair on face less dense and with the black hairs, in ♂♂, intermixed with more numerous and more conspicuous paler yellowish or golden ones, with the transverse bristles on abdomen in both sexes entirely yellowish or golden like rest of hair; face in front reddish or brownish; legs entirely pale ochreous yellow or yellowish in both sexes, with the front tarsi in ♀♀ not comparatively short, distinctly very much longer than front tibiae . . . 167.

167. (168) Wings faintly, but distinctly, tinged mauvish or reddish brownish; pubescence above in ♂ pale yellow, more golden in ♀, with a more ochreous yellow apical tuft on abdomen; face less distinctly reddish brown in front; interocular space in ♂ distinctly broader, at narrowest part, as broad as front part of ocellar tubercle or about as broad as length of antennal joint 2, about 3 times as broad as tubercle in ♀, with the upper facets in eyes in ♂ only imperceptibly coarser than lower ones; proboscis slightly shorter, about 3½–4 mm. long; legs with the majority of spines, especially on middle and hind ones, and the spines on hind femora below black; hypopygium of ♂ with the process, on each side of aedeagus, flattened and considerably broadened, leaf-like apically ♂ ♀ *rufiarticularis* n. sp. (p. 480).

168. (167) Wings less tinged, almost vitreous hyaline and with a feeble whitish tint in certain lights; pubescence above in ♂ more sulphur or lemon yellow and more golden in ♀, without the apical part of abdomen being more ochreous yellow; face more extensively and more distinctly yellowish to reddish brown; interocular space in ♂ distinctly narrower, at narrowest part, as broad as front ocellus or considerably narrower than length of antennal joint 2, more than 3 times as broad tubercle in ♀, with the upper facets in eyes in ♂ markedly coarser than lower ones; proboscis longer, about 4–4½ mm. long; legs with almost all the spines yellowish to pale yellowish brown; hypopygium of ♂ with the process, on each side of aedeagus, not characteristically broadened and leaf-like apically . . . . . ♂ ♀ *chlamydicterus* n. sp. (p. 482).

169. (166) Antennae entirely black or at least not reddish brown or yellowish in ♂♂, but joints 1 and 2 may be yellowish in some ♀♀; pubescence deeper yellowish and more often ochreous or fulvous yellow, with the hair on face denser and longer, with more numerous and more predominantly black ones in ♂♂, the pale ones being visible only round buccal rim in front, with the transverse bristles on abdomen, in ♀♀ at least, deeper yellow, often more golden reddish and even brownish towards apex; face entirely black; legs with the basal parts of femora in ♂♂ black; with the front tarsi in ♀♀ comparatively short, almost equal to or only slightly longer than front tibiae . . . . . 170.

170. (171) Antennae entirely black or very dark reddish brown in both sexes; sides of abdomen in ♂♂ with some red or reddish; pubescence on body below, especially in ♀♀, distinctly paler and more whitish, with the transverse bristles on abdomen in ♂♂ either entirely yellowish or with a few darker yellowish or reddish ones laterally near apex and with distinctly deeper, more reddish yellow, reddish brown and even distinctly brownish ones laterally and ventro-apically in ♀♀; interocular space in ♀♀ usually slightly narrower, scarcely 3½ times as broad as tubercle; legs with the majority of the spines on middle and hind femora below and those above on middle tibiae black; wings with a tendency for discoidal cell to be slightly less acute or subacute apically . . ♂ ♀ *nigribarbus* Lw. (p. 483). (Including forms.)

171. (170) Antennae entirely black in ♂♂, but with joints 1 and 2 yellowish in ♀♀; sides of abdomen in ♂♂ black; pubescence on body below, especially in ♀♀, more yellowish, with the transverse bristles on abdomen in both sexes entirely yellow and not darker ventro-apically; interocular space in ♀♀ slightly broader, quite 3½ times as broad as tubercle; legs with the majority of the spines on middle and hind femora and on middle tibiae above yellowish; wings with a tendency for discoidal cell to be more acute apically . . . . . ♂ ♀ *chrystallinus* Bezz. (p. 486). (Ex. descr. and labelled ♀.)

172. (129) Abdomen with distinct and more conspicuous transverse dark or black bristles across hind margins of most of the segments on sides in both sexes and these bristles in both sexes often not entirely confined to extreme sides, with those in ♀♀ more often also found on disc laterally above of even segments 2–4 and usually with some or even most of those on segments 5 and 6 discally above also dark or black . . . 173.

173. (174) All or the majority of the spines or spicules in the upper outer row on the front tibiae pallid or yellowish like those in lower outer row; pubescence above, especially on abdomen, more ochreous yellow and even more so apically in ♀; legs with the front tarsi in ♀♀ markedly short, almost subequal to front tibiae; antennal joint 3 tending to be more brownish . . Some ♀ forms of *nigribarbus* Lw. var. *falsus* n. (p. 485).

174. (173) All the spines or spicules in upper outer row on front tibiae entirely black; pubescence above, especially on abdomen, usually paler and more yellowish, not deep ochreous and the apex not deeper yellowish in ♀♀ or ♂♂; legs with the front tarsi in ♀♀ much longer than front tibiae; antennae entirely black . . . . 175.

175. (178) Pubescence on head below, pectus, lateral parts of pleurae, the metapleural tuft and sides of venter conspicuously frosty or chalky white, markedly contrasting with the straw-coloured whitish or yellowish to brassy or golden yellowish pubescence on body above . . . 176.

176. (177) Pubescence above pale straw-coloured yellowish to creamy yellowish in ♂♂, pale yellowish to brassy or golden yellowish in ♀♀, with the frosty white hair below less extensive and concentrated more on propleurae, pleural regions and sides of venter, with the sides in front of wings pale yellowish haired in ♂♂ and pale golden yellowish in ♀♀, with the transverse bristles on abdomen tending to be irregularly arranged in two rows across hind margins, with the coxal bristles in ♀♀ straw-coloured yellowish to yellowish; legs more dark brownish, the front faces of femora and tibiae darkened by black hair-like scaling, with about 9–10 spines on hind ones below; interocular space in ♂♂ very nearly in contact, subequal to width of front ocellus, in ♀♀ more than 3 times as broad as tubercle; wings distinctly greyish hyaline, the extreme base and costal cell yellowish brown to brownish, with upper part of fringe on squamae ochreous, containing some intermixed dark hairs

♂ ♀ *albipectus* n. sp. (p. 486).
(Syn. = *mixtus* Bezz. nec Wied.)

177. (176) Pubescence above more uniformly paler and more whitish, with frosty whitish hair below more extensive and occupying the entire body below, with that on sides in front of wings paler, dull straw-coloured whitish and not yellow, with the transverse bristles on abdomen apparently less dense and with a tendency for the rows to be single dorsally, with the coxal bristles entirely frosty or chalky white; legs paler, pale ochreous yellow, the front faces of the femora and tibiae without extensive or conspicuous black scaling, with about 6 spines on hind femora below; interocular space in ♀ about or scarcely 3 times as broad as tubercle; wings clear hyaline, the base and costal part subopaquely pale yellowish white or whitish, with the fringe of squamae entirely white

♀ *canescens* n. sp. (p. 489).

178. (175) Pubescence on head below, pectus, pleurae, in metapleural tuft and sides of venter not strikingly or conspicuously frosty or chalky white and, if whitish, not contrasting sharply (*Anastoechus*-like) with the pubescence above, with that on the body below, excepting head, whitish, pale yellowish white to pale yellowish and almost always, even when whitish with a slight yellowish tint . . . . . 179.

179. (180) Abdomen with the transverse rows of black bristles on sides containing fewer black ones, less extensive and also less conspicuous, pale-tipped and confined more to extreme sides and ventro-apically in ♀♀, being entirely absent above dorsally on segments 5 and 6; bristly hairs on ocellar tubercle in ♀♀ with more numerous and often predominantly pale yellowish or pale brownish intermixed ones; legs with the femora entirely yellow in both sexes or at least without very distinct black basal parts in ♂♂ . . . . . ♂ ♀ *mixtus* Wied. (p. 501). (Some forms of it.)

180. (179) Abdomen with the transverse bristles having more numerous, more conspicuous and also more extensive black bristles on sides, these extending laterally above also, especially in ♀♀, are rarely pale-tipped and always present on segments 5 and 6 above dorsally in ♀♀ even if only a few; bristly hairs on ocellar tubercle in ♀♀ usually predominantly black or at least with fewer pale intermixed ones; legs with the femora in ♂♂ always blackened at bases, in basal halves or even to beyond middle and even blackened basally in some ♀♀ . . . . . 181.

181. (188) Comparatively larger species, bulkier, about 8–12 mm. long, with a wing-length of about 8½–11½ mm.; legs with either the entire femora dark blackish brown or black or, at least, with the basal halves of front and middle ones and bases of hind ones distinctly blackened or darkened in both sexes; sides of abdomen in ♂♂ always with distinct red or reddish; antennal joint 1 shorter, scarcely 4, or a little more, times as long as joint 2; basal comb of wings well developed, the spines nearer its base being longer than the length of antennal joint 1; transverse bristles on abdomen, in known ♂♂, very or comparatively narrowly interrupted dorsally and, when more broadly interrupted on segments 2 and 3, the bristles are not confined to the extreme sides, with the black ones more numerous and conspicuous in both sexes, extending almost or to the dorsal interruption on most of the segments, especially in ♀♀ . . 182.

182. (185) Pubescence very pale sericeous, straw-coloured yellowish, dull whitish or straw-coloured whitish above, with sericeous or silky gleams, that on body below paler, more whitish or dull straw-coloured whitish, with the coxal bristles also paler and more whitish, with the transverse bristles on abdomen comparatively broadly interrupted dorsally on segments 2 and 3, the interruption being slightly more or about a third of width of segments; interocular space in known ♂♂ distinctly narrower, at narrowest part about as broad as or only a very little broader than, front ocellus, in known ♀♀ distinctly 3 or a little more than 3 times as broad as tubercle; wings with the squamal fringe whitish; halteres with slightly more brownish knobs; sides of abdomen, in known ♂♂, less extensively red, the red being confined more to extreme sides; tarsi with only the last 2 joints of front and middle ones black . . . 183.

183. (184) Pubescence above more straw-coloured yellowish, with sericeous gleams, with the black transverse bristles on abdomen slightly pale-tipped; legs with the femora only darkened at bases; wings more distinctly subopaquely whitish, with the costal cell, base and first basal cell more subopaquely whitish, with the veins darker and more blackish brown, the first longitudinal vein being darker brownish to black, with

the discoidal cell tending to be more subacute apically; hind femora with slightly more, about 9, spines below . ♂ *acridophagus* n. sp. (p. 474).

184. (183) Pubescence above and below paler and more dull whitish or straw-coloured, that on abdomen above also more whitish and with the black transverse bristles not pale-tipped; legs with the femora in ♀ distinctly more extensively blackened to near apex; wings more greyish hyaline, with the base, costal cell and first basal cell distinctly more subopaquely yellowish or ochreous, with the veins very pale yellowish brown, with the first longitudinal vein very pale yellowish brown and with the discoidal cell tending to be more obtuse apically; hind femora with only about 7 spines below . . . . . ♀ *damarensis* n. sp. (p. 490).
(Syn. = *mixtus* Bezz. nec Wied.)

185. (182) Pubescence distinctly more yellowish, dull yellowish, brassy yellow to golden yellow, with brassy to golden or deep golden gleams, that on body below distinctly less white, more yellowish and not much paler than above, with the coxal bristles pale yellowish to yellow, with the transverse bristles on abdomen distinctly more narrowly interrupted dorsally above on segments 2 and 3, the interruption being distinctly less than a third of the width of segments; interocular space in ♂♂, at narrowest part, slightly broader, distinctly and much broader than front ocellus, about as broad as front part of tubercle, about 3 times as broad as tubercle in ♀♀; wings with the squamal fringe more yellowish or yellow; halteres with distinctly more whitish knobs; sides of abdomen in ♂♂ distinctly more extensively reddened; tarsi with at least the last 3 or 4 joints of front and middle ones black . . . . . 186.

186. (187) Pubescence pale or dull yellowish, with dull brassy gleams, that on apical part of abdomen paler, inclining to whitish, with the hair on face, in ♂♂ at least, less developed, shorter and the bristly hairs on head above distinctly shorter, with the transverse bristles on abdomen on segments 2 and 3 more narrowly interrupted dorsally and, in ♀♀, with only the extreme lateral ones on segments 2–4 black, with pale yellowish or yellowish white bristles on venter; legs with the femora darkened or blackened only in basal halves or at extreme bases in both sexes, the front surfaces may be darkened by blackish scaling, without any apical spines above on front and middle femora and front ones unarmed; interocular space in ♂♂, at narrowest part, about as broad as front part of tubercle, with the upper facets of eyes in ♂♂ less coarse; antennal joint 3, in ♀♀ at least, with the apical part more slender; proboscis with the spinules below not or scarcely visible; wings with the base, costal cell and first basal cell much paler, subopaquely very pale yellowish brown or even yellowish white, with the squamal fringe very pale yellowish white or creamy yellowish; hypopygium of ♂ with the process, on each side of aedeagus, flattened, broadened and racket-shaped apically ♂ ♀ *eremophilus* Hesse (p. 492).

187. (186) Pubescence distinctly more pale golden to deep golden, with more golden gleams, that on apical part of abdomen, especially in ♀♀, less whitish and more golden, with the hair on face, in ♂♂ at least, slightly longer, denser and more conspicuous, and the bristly hairs on head above longer and those on antennae also denser, with the transverse bristles

on abdominal segments 2 and 3 dorsally very much more broadly interrupted above and, in both sexes, with all the bristles in the rows entirely black, with black transverse bristles on venter; legs with the entire femora, excepting only the apices, dark brownish black to black in both sexes, with the front surfaces of both the front pairs and the tibiae even more darkened by black scaling, with the front and middle ones often armed above with apical spines, the front ones also armed below with about 2–4 short spines; interocular space in ♂♂, at narrowest part, much narrower and only about as broad as front part of tubercle, the tubercle itself being smaller, with the upper facets of eyes in ♂♂ distinctly more coarse and distinctly coarser than lower ones; antennal joint 3 with the apical part comparatively thick and distinctly less slender; proboscis with the spinules on labium below dense and distinctly visible; wings with the base, costal cell and first basal cell much darker, yellowish brown to brownish, with the squamae darker and its fringe distinctly more subfulvous or yellowish; hypopygium of ♂ with the process, on each side of aedeagus, narrow, strap-like and not broadened, clavate or racket-like apically . . . . . ♂ ♀ *waltoni* n. sp. (p. 493).

188. (181) Comparatively smaller species, less bulky, usually about 6–10½ mm. long, with a wing-length of about 7–9 mm.; legs with the femora in ♀♀ entirely yellowish, blackened in bases or in basal halves or even entirely in some ♂♂; sides of abdomen in ♂♂ without any red; antennal joint 1 usually at least 4, or even distinctly more, times as long as joint 2; basal comb of wings less strongly developed, even very small, with the spines nearer base much shorter and never or very rarely longer than antennal joint 1; transverse bristles on abdomen in ♂♂ very broadly interrupted dorsally and on segments 2 and 3 only found on extreme sides, with the black ones in both sexes less conspicuous, less numerous and more confined to the sides, the greater number of those discally above being whitish or yellowish even in ♀♀ . . . . . 189.

189. (196) Interocular space in ♂♂ distinctly narrower, about as broad as front ocellus or only a very little broader at narrowest part, with the inner margins of eyes, on each side of tubercle, in ♂♂ from their hind angle to point of divergence in front, longer, at least 2, or much longer than 2, times the width of interocular space or at least ⅔ length of antennal joint 1; legs in ♂♂ with the femora entirely yellowish or distinctly less extensively darkened, the hind ones being not extensively or entirely black; last abdominal tergite in both sexes with black bristles or bristly hairs on each side and, when not very distinct, the interocular space in ♂♂ at least is narrow and the black bristles on abdomen in ♀♀ are pale-tipped; wings more often distinctly darker in costal cell and at base, being usually more brownish; antennae with joint 1, on the whole, slightly longer, about 4–5, or even more, times as long as joint 2, with 3 usually distinctly more broadened basally or at least more rapidly narrowed towards apex and without or with only a few intermixed pale hairs on joint 1 in ♀♀ . . . . . 190.

190. (193) Interocular space in ♂♂ much narrower, only about as broad as front ocellus, in ♀♀ tending to be narrower, not very much more than 3 times as broad as tubercle; antennae with joint 1 slightly shorter, only about

$3\frac{1}{2}$–4 times as long as joint 2, with joint 3 less rapidly narrowed towards apex or with a shorter apical slender part, the joint, on the whole, shorter; wings tending to be distinctly darker and more brownish at base, in costal cell, first basal cell and even in second basal cell to a variable extent, with the veins much darker, very dark blackish brown to almost black . . . . . 191.

191. (192) Pubescence on body predominantly more yellowish, creamy yellowish to pale golden yellowish in both sexes, that towards apex of abdomen only slightly paler, creamy whitish or yellowish; scutellum usually more extensively reddened or entirely reddish; legs with the femora in ♂♂ only darkened in some specimens at extreme bases, the hind ones being entirely yellowish . . ♂ ♀ *silvaticus* n. sp. var. *turneri* n. (p. 500).

192. (191) Pubescence on body entirely or predominantly whitish, straw-coloured whitish to straw-coloured yellowish in both sexes, that towards apex of abdomen in both sexes distinctly more white; scutellum with a tendency to be less red and sometimes only so discally; legs with the femora in ♂♂ often darkened to about middle

♂ ♀ *silvaticus* n. sp. var. *turneri* n. (p. 500).
(Pale-haired form.)

193. (190) Interocular space in ♂♂ slightly broader and distinctly broader than front ocellus, about $1\frac{1}{2}$–2 times as broad as front ocellus, in ♀♀ tending to be a little more than 3 times as broad as tubercle; antennae with joint 1 either distinctly longer, 4–5 or slightly more, times as long as joint 2 or, if shorter than 5 times, the interocular space in ♂♂ is broader and black bristles on abdomen in ♀♀ are pale-tipped, with joint 3 usually distinctly more rapidly narrowed apically, the apical slender part usually more slender and longer; wings either distinctly less dark in costal cell and base or when distinctly darkish the dark is less conspicuous, with the veins less dark and more brownish . . . . . 194.

194. (195) Abdomen with distinct, black, not pale-tipped bristles towards apex on segments above as well as laterally on the other segments in both sexes and always with black bristles or bristly hairs on sides of last tergite; wings with the costal cell, base, first basal cell and often even base of second basal cell more distinctly yellowish brown or yellowish, with the veins darker and more brownish; antennal joint 1 distinctly longer, about $4\frac{1}{2}$–5, or even slightly more, times as long as joint 2; hind margins of ventral segments entirely black or only very obscurely pallid; frons in ♂♂ without a distinct tuft of pale hairs just in front of tubercle and ocellar tubercle in ♀♀ with predominantly, or entirely, black hairs

♂ ♀ *silvaticus* n. sp. (p. 497).
(And forms of it.)

195. (194) Abdomen without any black bristles towards apex above in both sexes or a very few in ♀♀ and without any or only a few inconspicuous blackish bristly hairs on sides of last tergite with the black bristles on sides of abdomen in both sexes becoming paler apically (*i.e.* distinctly pale-tipped); wings usually much paler and more subopaquely whitish or pale yellowish at base, in costal cell and first basal cell, rarely with a more brownish tint, with the veins distinctly more yellowish; antennal joint 1 distinctly shorter, less, and often much less than 5 times as long as 2;

hind margins of ventral segments in both sexes more distinctly and often conspicuously more pallid; frons in ♂♂ with a distinct tuft, or at least with a good number, of pale hairs in front of ocellar tubercle and with more numerous or even predominantly yellowish or pale bristly hairs on tubercle in ♀♀ . . . . . ♂ ♀ *mixtus* Wied. (p. 501).

(Forms of it.)

196. (189) Interocular space in ♂♂ distinctly broader, at narrowest part, much broader than front ocellus, about as broad as front part of tubercle and only a little narrower than posterior part of tubercle, with the inner margins of eyes in ♂♂, on each side of tubercle, from hind angle to point of divergence in front, shorter, subequal to, or even less than, 2 times the width of interocular space or distinctly shorter than two-thirds length of antennal joint 1; legs in ♂♂ with the femora distinctly more extensively blackened to beyond middle and with the hind ones entirely or almost entirely, black; last abdominal tergite in both sexes without any black bristles or bristly hairs on side and also without black bristles on last few segments in ♂♂ above; wings with the base, costal cell and first basal cell distinctly much paler, very pale yellowish white or subopaquely whitish; antennae with joint 1, on the whole, shorter, not more or scarcely more than about 4 times as long as joint 2, with joint 3 comparatively less rapidly broadened basally, more gradually narrowed apically, often more subrod-like and with more numerous pale hairs on joint 1, especially below, in ♀♀ . . ♂ ♀ *deceptus* n. sp. (p. 504).

Gen. *Anastoechus* Ost. Sack.

48 ♂♂ 86 ♀♀ *A. deserticolus* n. sp.

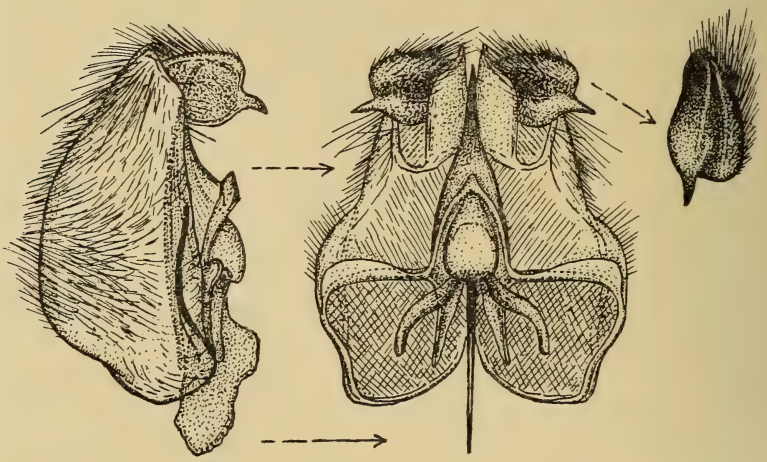
(Syn. = *rubricosus* Bezz. nec Wiedemann.)

Body black, often with a greyish mauve or slate-coloured bloom on the thorax and abdomen above in some forms and, where this is denuded, the integument shows a slight deep metallic blue sheen in sunlight; first antennal joints pale yellowish, the second joints dark blackish or reddish brown and the extreme apices of joint 3 not entirely black like rest of joint, but often more brownish; front part of face and in ♀♀ also front part of frons, pale reddish yellow to dark reddish; scutellum, excluding narrow black base, more often pale reddish to ferruginous red, but in some specimens only obscurely red on disc; sides of abdomen very broadly and to a certain extent the hind margins towards sides of segments 2 and 3 and more broadly on 4 and 5 and the entire dorsum of the rest in the ♂♂ very pale reddish, terra-cotta to salmon pink, in ♀♀ also broadly red on the sides, but less extensively than in ♂♂, with the hind margins of segments 3–6 above and entire segment 7 of the same colour, but in some forms the hind margins are pale yellowish red to ivory yellowish;

venter pale yellowish, pale reddish to reddish brown or brownish, the hind margins ivory whitish to yellowish or yellowish red and ♂-genitalia yellowish; metapleural parts in many specimens with irregular infusions of yellowish red to obscure brownish red; legs, including coxae and trochanters, very pale yellowish, almost pallid in many specimens, the hind femora, in some smaller forms, with a slight pale brownish infusion on its upper apical outer aspect, especially in ♂♂, with the tarsi becoming more brownish yellow towards apices, the apical part of last joint or even last 2 joints in some forms, as well as the planes of articulation of the other joints dark brownish black to black, apical two-thirds of claws black, all the spines pallid to pale yellowish and the scaling on legs whitish; pubescence comparatively long, with the bristly elements well developed, varying from greyish white, through pale yellowish white and pale ochreous to soft yellowish brown when viewed from above, viewed from in front or the sides it varies above from pale greyish white to pale creamy whitish, yellowish to golden, that on occiput and thorax in front of ♂♂, in certain lights, whitish to very pale creamy whitish, in ♀♀ whitish to pale yellowish or yellowish white, hair on occipital part and sides in front of wings in some ♀♀ often distinctly yellowish to ochreous, that on abdomen long and shaggy, whitish, pale creamy whitish to pale yellowish white, the extreme sides and the apex distinctly whitish, with the bristles on thorax, posterior calli and scutellum whitish, pallid to pale yellowish white, those on occiput, in some ♀♀, more yellowish, the transverse hairs across hind margins before rows of bristles tipped pale creamy yellowish, ochreous to pale brownish fulvous, even distinctly dark mauvish in some forms, with the transverse bristles long, conspicuous, mostly brownish, blackish brown, purplish brown to black, only their bases or basal halves and often all on segment 2 entirely yellowish to pale golden, the bristly hairs on ocellar tubercle and bristles on sides of frons, varying from whitish to straw-coloured in ♂♂, to very pale yellowish or ochreous in ♀♀, those on first antennal joints, on frons in front, sides of face and face in front and some intermixed on upper parts of genae straw-coloured yellowish, pale yellowish to ochreous in ♀♀, whitish to very pale yellowish white or pale yellow in ♂♂, with the genal bristles white or straw-coloured white in ♂♂, often slightly more yellowish in some ♀♀ and often distinctly tipped yellowish to pale ochreous yellow in some ♀♀, with the flattened depressed scaling along hind margins of eyes laterally and along sides of genae, the hair on head below frosty or chalky white, that on pectoral and

pleural regions more frosty white in ♀♀, the bristly hairs on coxae, especially the front ones, and some on propleurae entirely whitish to straw-coloured in ♂♂, tipped straw-coloured yellowish to yellow in ♀♀, the bristles of metapleural tuft white to straw-coloured in ♂♂, more yellowish, even ochreous in some ♀♀, pubescence on venter pale straw-coloured yellowish to yellowish in ♂♂, slightly more yellowish in ♀♀, the bristles straw-coloured to pale sericeous in ♂♂ and pale yellowish to golden or fulvous in some ♀♀; wings with the costal cell, first marginal cell (to even slightly beyond its apex), basal two-thirds of first submarginal cell, apical part of first basal cell, basal fourth and the upper half of first posterior cell (up to its end), extreme base of second marginal cell, more or less the apical half of second basal cell, bases of discoidal and fourth posterior cells, basal half of anal cell and often extreme base of axillary cell pale yellowish brown to deep yellowish brown, the extreme base, basal part of costal cell, basal three-quarters of first basal cell and more or less basal half of second basal cell, alula and in some specimens, middle of apical part of marginal cell more translucently pale yellowish, the rest of wing (posterior part) hyaline and also an obscure clear spot in apical part of second basal cell, with the basal comb whitish, yellowish, ochreous yellow to orange in some forms, the veins brownish yellow, brownish to dark brownish, becoming paler towards base, with the discal cross vein, basal cross vein of fourth posterior cell and basal part of vein between submarginal cells distinctly darker, the squamae subopaquely pale yellowish white, pale yellowish to yellow, with white to creamy yellowish or distinctly yellow fringes in some ♀♀; halteres very pale yellowish to brownish yellow, with white to very pale yellowish white knobs. *Head* with the interocular space in ♂♂ comparatively wide, wider than ocellar tubercle, at narrowest part about or nearly twice as wide as posterior part of tubercle, almost at once rapidly widening anteriorly from narrowest part, in ♀♀ about 3, or even slightly more, times as wide as tubercle; occiput with the hairs long and longer in the ♀♀; antennae with joint 1 slightly longer in ♀♀, joint 2 broader than long, with 3 much longer than 1 and 2 combined, club-shaped, much thickened at base, broadest at about basal fourth, rapidly narrowed apically, the apical half or more being long and slender, the extreme apex being again slightly dilated, with the first terminal joint indiscernible and the style slender and straight; face with the pubescence and mystax well developed, the bristles in front and laterally, as well as those on genae prominently developed and more so in ♀♀; lower parts of genae with distinct long and stout

bristles; palps comparatively slender and feeble; proboscis often with the extreme basal part reddish or brownish, about 3–5½ mm. long. *Legs* with the bristles on coxae very well developed and long; front and middle femora, in ♂♂ at least, with long white hairs posteriorly; front ones with 1–3 spines in front; middle ones with from 4–9 in front and 1–4 behind; hind ones with about 7–19 spines below, the number varying with the size of the specimens and are more often more or less irregularly arranged in 2 or more rows



TEXT-FIG. 78.—Side and ventral views of hypopygium and dorsal view of beaked apical joint of ♂ *Anastoechus deserticolus* n. sp.

towards apex; claws comparatively long and slender, longer in ♂♂, only slightly bent downwards from about middle to apex, with the pulvilli extending to middle or even slightly beyond in ♂♂, more reduced and confined to basal third in ♀♀; joints 2–5 of front tarsi in ♀♀ slightly modified, appearing more dilated or thickened than middle tarsi and also provided with fairly dense, fine and slender hairs, especially on last 3 joints, from where the two rows of ventral spines, present on middle and hind tarsi, are entirely absent, the front pulvilli in ♀♀ are also slightly more reduced and confined to base, the claws also slightly shorter. (The front tarsi in all ♀♀ of *Anastoechus* and *Systoechus*, like those of *Bombylius*, are of course modified.) *Hypopygium* of ♂ (text-fig. 78) with the basal parts with fairly long hairs, the neck region towards dorsum with long and shaggy hairs, the dorsal margin of inner apical processes also with long hairs; apical beaked joint comparatively broad, hollowed from

below, with a somewhat elongate depression above and outer upper convex part with dense hairs, long basally, the beaked curved outwards; aedeagus with the apex nearly reaching level of inner apical processes, with the base not very much produced anteriorly into a plate or ventral aedeagal process.

Types in the South African Museum and paratypes in the Transvaal and British Museums and in Imperial Institute.

Length of body: about 6–14 mm.

Length of wing: about 7–13 mm.

Locality.—Namaqualand: Springbok (♂-holotype from here and labelled as *rubricosus* by Bezzi); O'okiep (♀-allotype also labelled *rubricosus*), paratypes from Bowesdorp, Kamieskroon, Garies District and Spektakel (South African Museum). N.W. Karoo: Calvinia (Ogilvie, 11–16/11/31) (Imperial Institute); Van Wyk's Vlei and Bushmanland (South African Museum). Little Karoo: Willowmore (Transvaal Museum). S. Karoo: Matjiesfontein (Turner, Oct.–Nov. 1928) (British Museum). Nieuwveld Karoo, Central and Gouph Karoo (Mus. Staff, Nov. 1935).

This species is very typical and characteristic and may easily be recognised by its excessive hairiness, its characteristically infuscated wings. The species seems to be very variable and at least five, more or less different, forms are distinguishable:—(1) The type form, which is fairly large, with predominantly yellow ochreous or pale yellowish brown pubescence and yellowish basal comb. (2) Another large form, which is slightly paler, more creamy yellow in certain lights, with almost orange coloured basal comb. (3) Another Namaqualand form with the transverse hairs before rows of bristles much darker at tips, more brownish to brownish black and with the infuscated part of wings in some specimens paler, more pale yellowish and not so conspicuous. (4) Smaller forms which, when viewed from side, are distinctly paler, less yellow and more whitish, with fewer spines on hind femora and darker scutellum. (5) The smallest forms, which are distinctly paler greyish white and almost white above, with whitish basal comb.

This species is also remarkable in that it represents in the genus *Anastoechus* more or less the same pattern-type of species that *purpureus*, *micans* and *hypoleucus* do in the genus *Bombylius*. As a matter of fact, so close is this specific parallelism that *A. deserticolus* may be superficially mistaken for *B. micans* or *hypoleucus*. It has the same well-developed pubescence, bristles, etc., on the body, a very similar type of wing pattern, the same well-developed pubescence

and bristles on the head, face and genae, same wide interocular space in the ♂, similar claws and pulvilli, obtuse apical part of discoidal cell, etc. Moreover, the species *darlingi*, *hirtus* and *melanurus* bear the same relationship to *B. hypoleucus* that the various forms of *deserticolus* bear to this type form.

Both Bigot and Bezzi (p. 47, Ann. S. Afr. Mus., vol. xviii, Pl. I, fig. 9, 1921) wrongly determined this species as *rubricosus* (Wied.) (*see* under *rubricosus*). The species seems to be more or less confined to the drought-stricken and arid parts of South Africa, where it is always found hovering over and resting on the dry and hot sand.

1 ♂ 3 ♀♀ *A. deserticolus* var. *coloratus* n.

This variety is so near certain forms of *deserticolus* that the differences only may be mentioned. It is relatively much smaller; the body is comparatively more elongate, and narrower; pubescence is more uniformly paler greyish white on thorax and more straw-coloured yellowish on the abdomen and only in ♀♀ is it more distinctly yellowish towards apex and on sides; the red on abdomen is comparatively more reduced, the red hind margins towards apex less conspicuous; pubescence and bristles on head comparatively paler, whitish in ♂, like that of small forms of *deserticolus* s.str., but the transverse bristles on abdomen darker in ♀♀; wings darker, distinctly tinged greyish or cinereous in the posterior half, with the front part infuscated as in *deserticolus*, but first posterior cell is almost entirely infuscated, the constant lower clear half of apical part of this cell in *deserticolus* being here scarcely discernible, the apical clear half of anal cell of *deserticolus* is also much less clear, the infuscation at apical part of second basal cell, basal half of fourth posterior cell and base of third posterior cell is also more diffused, almost the entire fourth posterior cell being tinged (the hyaline posterior half being on the whole more tinged and less conspicuously delimited from the anterior infuscated part than in *deserticolus*); legs with apparently fewer spines, 5–8, on hind femora below. *Hypopygium* like that of *deserticolus* (cf. text-fig. 78) with the apical beaked joints comparatively narrower, but larger in relation to the basal part, the beak more slender and the hairs shorter, hair on dorsum of neck region also much shorter; aedeagus distinctly projecting beyond inner apical processes; lateral struts and basal strut much feebler.

Types in the South African Museum.

Length of body: about 5½–7 mm.
Length of wing: about 6–7½ mm.
Locality.—Namaqualand: Bowesdorp (Mus. Staff, Nov. 1931).

2 ♂♂ 2 ♀♀ *A. argyrocomus* n. sp.

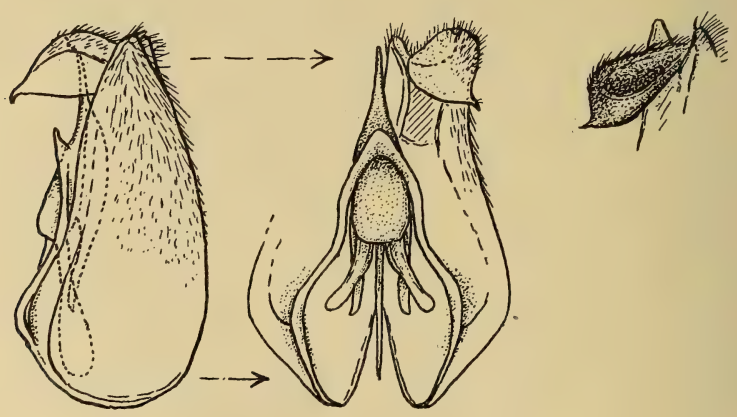
(Syn. = *leucosoma* Bezz. in part.)

The ♀-specimen from Matjiesfontein, referred to *leucosoma* by Bezzi (p. 54, Ann. S. Afr. Mus., vol. xviii) as well as another ♀ and ♂ from the same locality, although superficially inseparable from *leucosoma*, show distinctly different specific characters and compared with the ♀♀ of *leucosoma* the following differences may be mentioned:—

The specimens are comparatively larger and bulkier, with a body-length of about 9–10 mm. and a wing-length of about 8–9 mm.; the beautiful dense, frosty white or silvery white pubescence and bristles above and below comparatively longer and apparently denser; head very much broader, the hairs and bristles on frons and hairs on face denser, longer and more developed, with the blackish brown bristly hairs on frons more extensive and even a few intermixed ones extending down lower and upper parts of genae, with distinct stiff hairs or bristles on face anteriorly and even a few bristles on genae also, with the interocular space above considerably broader, though having the same relationship of about 4½ times as wide as ocellar tubercle, the tubercle also being much smaller in *leucosoma*, with antennal joint 1 comparatively much longer, subequal to 3, whereas in *leucosoma* it is distinctly much shorter, with joints 1 and 2 combined longer than 3, shorter than 3 in *leucosoma*, with joint 3 almost rod-like, only slightly thickened at about basal third, the base broad and not petiolate as in *leucosoma*, with the eyes larger, the facets also comparatively larger, with the proboscis distinctly shorter, less slender, about 4½ mm. long; wings with a slightly more distinct whitish tint in certain lights, with the costal cell, first basal cell and extreme base also subopaquely whitish, the veins however distinctly darker, more dark brownish to blackish brown and the first longitudinal vein dark brown, not yellowish; halteres dark brown, with dark brown knobs, not yellowish with white knobs; abdomen above with the hair and bristles much denser and longer; legs stouter, but with the femora almost entirely blackened and white-scaled as in *leucosoma*, but more hairy, also only the apices of the tibiae yellowish, with, however, a spine apically on hind face of front femora and 2 or 3 whitish spines in front on middle ones and 5–7 whitish ones on hind

femora below, with the claws more developed and longer than in *leucosoma*.

The ♂ is like the ♀, but the bristly hairs on ocellar tubercle and frons are longer and finer and slightly paler brownish, only the ones intermixed on frons laterally in front and on face laterally above are blackish brown as in ♀; bristles on face in front are more slender and less stout; interocular space much narrower, only very slightly wider than the tubercle at narrowest part at level of lateral ocelli;



TEXT-FIG. 79.—(*a*) Side view and half of ventral view of hypopygium of ♂ of *Anastoechus argyrocomus* n. sp. (*b*) Beaked apical joint of hypopygium of ♂ *Anastoechus nitens* n. sp.

eyes with the upper facets coarse; third antennal joint comparatively shorter, more slender and rod-shaped, scarcely broadened basally, with the style, as in ♀, slender, short and inconspicuous; abdomen with the pubescence and bristles finer; legs coloured as in ♀, only more slender, with the same number, but more slender, spines on the femora. *Hypopygium* (text-fig. 79, *a*) comparatively narrow, the basal parts only with fine hairs; apical beaked joint leaf-shaped, very rapidly narrowed to a short outwardly directed beak, with a large, elongate, basal, foveate depression above, the hairs short above, lower surface more or less hollowed out; aedeagus with the lateral rami forming a slightly pointed ventral aedeagal process; lateral and basal struts shortish, the basal one slender and club-shaped.

Types in the South African Museum.

Locality.—S. Karoo: Matjiesfontein (Trimen, Oct. 1891) (Types): Calitzdorp Distr.; Matjiesvlei (Brauns, Oct. 1921).

This species is probably the southern representative of *leucosoma* of the North Western Cape.

1 ♂ *A. nitens* n. sp.

Very close to *argyrocomus*, having the same beautiful frosty white or silvery white pubescence and bristles and superficially inseparable from ♂ of *argyrocomus*, differing, however, in being comparatively broader across the thorax, in that the integument of body in this specimen is not black, but dark brownish to brownish black; frons, face and scutellum as well as pleural parts being even more brown than body above; venter yellowish; antennal joints 1 and 2 yellowish, with 3 black but with a brownish apex; proboscis more or less narrowly pale brownish below towards base; bristly hairs on ocellar tubercle, frons and sides of face dark brownish as in *argyrocomus*; legs yellowish and even greater part of femora also yellowish, only the upper surfaces and bases darkened and brownish, not black, with the spines more brownish yellow; femora with less pubescent hairs below basally, with 1 apical spine below on front ones, 2–3 in front and 1 behind on middle ones, and about 7 spines below on hind femora from just before middle to apex; claws slightly longer and more slender and only slightly curved downwards from middle to apex, the pulvilli also as in *argyrocomus*; wings with the veins more yellowish; interocular space, at narrowest part, about 2 times as wide as in *argyrocomus*, the ocellar tubercle also being much larger, the space broader than tubercle, a little less than twice the distance between the two posterior ocelli; antennae with joint 1 comparatively longer, subequal to 3, which is similarly rod-shaped; face viewed from in front much broader, the mystax as dense, but the bristles on genae slightly more apparent; proboscis slightly shorter, about $3\frac{1}{2}$ mm. long; halteres yellowish, with ivory white knobs, not brownish ones. *Hypopygium* very similar to that of *argyrocomus* (cf. text-fig. 79, *a*), elongate and narrow, the apical beaked joints (text-fig. 79, *b*), however, with the dorsal foveate depression slightly longer and deeper, the front part more steeply sloping; ventral process at base of aedeagus less pointed and less prominent.

Type in the South African Museum.

Length of body: about 10 mm.

Length of wing: about $9\frac{1}{2}$ mm.

Locality.—Namaqualand; "P.N.8" (probably "Port Nolloth").

The above three species are characterised by the beautiful downy,

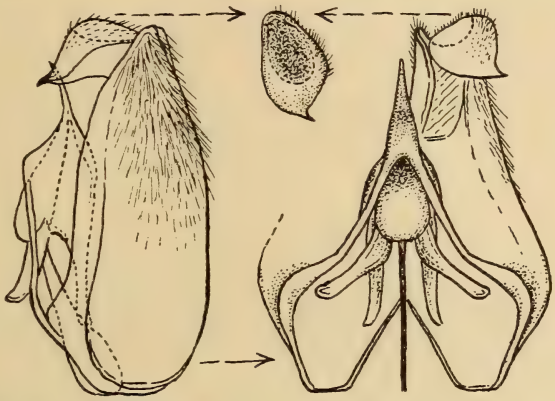
silvery white or frosty white pubescence and hyaline, or only faintly whitish-tinted, wings. They also show the same parallelism of pattern and relationships to other species of *Systoechus* and *Anastoechus* as the remarkably similar *B. molitor*, *volucer*, *leucolasius* and *minusculus* bear to other species of *Bombylius*.

3 ♂♂ 4 ♀♀ *A. pruinosus* n. sp.

Superficially these specimens are almost inseparable from *argyrocomus*, *nitens* and *leucosoma*. They all have longish, dense, shaggy, entirely gleaming silvery whitish pubescence and bristles, thus also resembling white haired species of *Bombylius*, such as *volucer*, *molitor*, *leucolasius* and *minusculus*. Their separation is thus a difficult matter. This species is, however, much nearer *argyrocomus* than *leucosoma*, and may even be considered as a northern representative of *argyrocomus*.

Like *argyrocomus* the entire body, including scutellum, is entirely black; legs also with the femora black to much beyond the middle, the tibiae yellowish and apical parts of tarsi blackish; pubescence also entirely gleaming silvery or silky white, only the pubescence on body below less brilliantly silvery and with the hairs on ocellar tubercle and longer bristly hairs or bristles on basal part of frons, sides of frons and even a few down sides of face black in both sexes; wings also faintly subopaquely tinted milky whitish but with the basal half in ♂♂ not hyaline or clear as in *argyrocomus* but distinctly tinged smoky brownish up to end of costal cell, then across basal halves of marginal, first submarginal, first posterior, discoidal and fourth posterior cells, with, however, the costal cell, base and basal three-quarters of first and second basal cells and alula more subopaquely whitish or yellowish white, with the wings in ♀♀ entirely clear as in *argyrocomus*, only the base, costal cell and first basal cell almost imperceptibly more pale yellowish white instead of white, the veins and especially costal veins also very dark as in *argyrocomus*, the squamae also opaquely whitish and black bordered as in *argyrocomus* and not yellowish bordered as in *leucosoma*; halteres with the knobs also very dark brownish and not pale as in *leucosoma*. *Head* with the interocular space in ♂♂ much broader than in *argyrocomus*, in fact remarkably broad, nearly or about 2 times as broad as broad ocellar tubercle, in ♀♀ on the contrary slightly narrower than in *argyrocomus*, only about or nearly 4 times as broad as tubercle, quite $4\frac{1}{2}$ times in *argyrocomus*; antennae with joint 1 nearly 6 times as long

as 2, thus about as long as in *argyrocomus*, with 3 subrod-like, subequal to joints 1 and 2 combined; proboscis about 4–5 mm. long. *Legs* with 1 spine in front apically and about 2 behind on front femora; middle ones with about 2 spines medially below and 1 or 2 behind apically; hind femora with about 5–8 spines below; claws slender, only gradually curved downwards, with the pulvilli not quite reaching the middle of the claws in both sexes as in *argyrocomus*. *Hypopygium* of ♂ (text-fig. 80) very much like that of *argyrocomus*



TEXT-FIG. 80.—Side view, half of ventral view, and dorsal view of beaked apical joint of hypopygium of ♂ *Anastoechus pruinosus* n. sp.

and *nitens*, differing only in having no apically projecting lobe-like or lip-like process below aedeagus, in having a slightly shorter beaked apical joint and longer lateral and basal struts.

Types in the South African Museum.

Length of body: about 6½–9 mm.

Length of wing: about 7–10 mm.

Locality.—N. Eastern Karoo: Venterstad (Mus. Staff, Oct. 1935) (Types); Steynsburg Distr. (Mus. Staff, Oct. 1935); Burghersdorp Area (Mus. Staff, Oct. 1935). O.F.S.: Bethulie; Caledon R. (Mus. Staff, Oct. 1935).

A. leucosoma Bezz.

(P. 54, Ann. S. Afr. Mus., vol. xviii, 1921.)

The ♀-type from Bushmanland and 3 other ♀♀ from Prieska and O'okiep and 1 ♀ from Murraysburg District can only be considered as belonging to this species. In addition to Bezzi's description the following points may be added: *Abdomen* usually with the narrow

hind margins of tergites 6 and 7 yellowish to reddish and sometimes even the venter is reddish or brownish; wings with a feeble whitish tint and paler veins than in *argyrocomus* or *pruinosus*, the costal veins being yellowish; antennae with joint 1 much shorter than in *argyrocomus* or *pruinosus*, only a little more than 3 times as long as 2, with 3 distinctly longer than 1 and 2 combined and tending to be broadest just before middle; interocular space on vertex in ♀♀ relatively broader in relation to tubercle, nearly or quite 5 times as broad as tubercle; claws much shorter than in *argyrocomus* or *pruinosus*, also only gradually curved and with the pulvilli short.

Length of body: about 5–6½ mm.

Length of wing: about 5½–7 mm.

Locality.—Namaqualand, Bushmanland, N.W. Karoo and Central or Great Karoo. (In the South African Museum.)

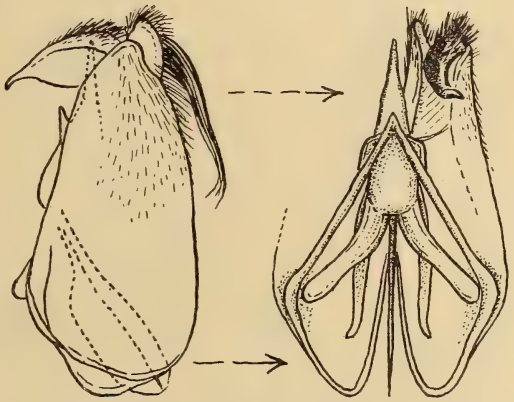
A. erinaceus Bezz.

(P. 50, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species, described from Namaqualand, is easily recognised by the following characters:—

Body predominantly black; scutellum with more than hind half ferruginous; legs with the femora darkened to beyond middle, the tibiae yellowish and only apical parts of tarsi more brownish; pubescence much like that of *deserticolus*, the head very bristly, bristles being present on face and on genae, the bristles on abdomen also long and shaggy, with the pubescence on body above predominantly gleaming silvery whitish in both sexes, that on disc of thorax with very faint brownish gleams, with the scaling on sides of face, the pubescence and bristles on genae, the hair on head and body below and on sides of abdomen chalky whitish, with the bristles on head above, thorax, scutellum and transversely across hind margins of tergites very dark purplish brown in both sexes and some bristles on venter also very dark; wings with a distinct subopaquely mauvish tint, becoming more distinctly reddish brown or yellowish brown at base, in costal cell, basal half of marginal cell, first basal cell, second basal cell and even across basal halves of first submarginal, first posterior, discoidal, fourth posterior and anal cells in ♂, in ♀ only distinctly subopaquely yellowish brown at base, in costal cell and first basal cell, the basal comb dark purplish brown in both sexes, covered with white scaling, with the veins reddish or purplish brown, the squamae opaquely pale yellowish, dark bordered and fringed with

white hairs; halteres yellowish brown with very pale knobs. *Head* with the interocular space in ♂ broadish, only a little more than 1½ times as broad as ocellar tubercle, in ♀ about 4 times as broad as tubercle; antennae with joint 1 about 3 times as long as 2 along dorsal part in ♀ and only about 2½ times as long as 2 in ♂, with 3 gradually tapering to apex, the apex very slightly thickened; proboscis about 5 mm. long. *Legs* without any visible spines on front femora below; middle ones with about 3–4 longish spines apically



TEXT-FIG. 81.—Side view and half of ventral view of hypopygium of ♂ *Anastoechus erinaceus* Bezz.

in front; hind ones gradually curved downwards, with the pulvilli reaching middle of claws in ♂, confined to base in ♀. *Hypopygium* of ♂ (text-fig. 81) with long, characteristic, tress-like hairs on dorsal margin of apical part of neck region, these hairs very nearly or quite half as long as basal parts; beaked apical joints with a rather longish beak, with the inner side of beaked joints somewhat elongately depressed above and with a crest of spine-like hairs on outer ridge-like part above; aedeagus with a short, pointed, lobe-like, apically projecting process below formed by the fusion of apical parts of rami from basal parts.

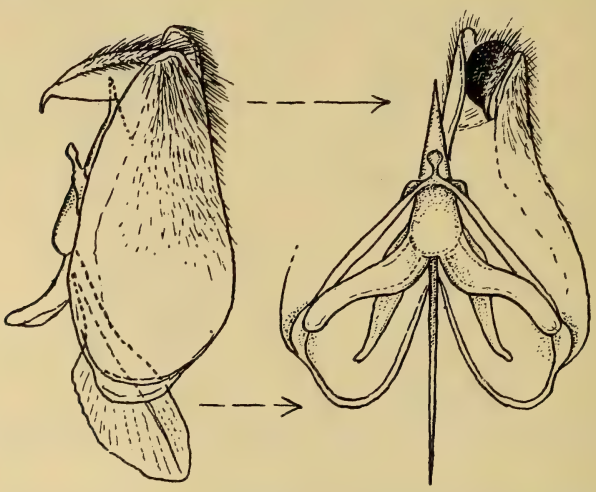
Locality.—Namaqualand: Springbok. (In South African Museum.)

6 ♂♂ 6 ♀♀ *A. flavosericatus* n. sp.

Externally there appears to be so little difference between these specimens and the typical *erinaceus* that they may almost be taken to represent a variety of the latter. The hypopygium of the ♂,

however, shows some distinct differences. Compared with *erinaceus* the chief points of difference are:—

Body black, but the sides of the abdomen in ♂♂ more conspicuously and more broadly reddened; legs with the hind tibiae slightly more brownish yellow or more brownish than in *erinaceus* and the apical parts of the tarsi are also darker; pubescence on body above distinctly more gleaming sericeous yellowish or pale golden yellowish and towards base of thorax above distinctly more yellowish or golden,



TEXT-FIG. 82.—Side view and half of ventral view of hypopygium of ♂ *Anastoechus flavosericatus* n. sp.

with that on face and body below frosty white as in *erinaceus*, the bristles on head, thorax and abdomen above also blackish or very dark purplish black; wings also tinted slightly subopaquely mauvish, but the darker costal and basal parts in ♂♂ more distinctly brownish and in ♀♀ also less reddish and more brownish, with the veins distinctly darker and more blackish brown. *Head* as in *erinaceus*, but with the interocular space in ♂♂ slightly narrower, with the proboscis also about 4½–5 mm. long. *Hypopygium* of ♂ (text-fig. 82) differs in having the beaked apical joints slightly longer, in having shorter hairs on beaked apical joints, no long tress-like hairs on inner apical parts of basal parts, a more knob-like ventral aedeagal process and also a distinctly longer basal strut.

Types in the South African Museum.

Length of body: about 7–9 mm.

Length of wing: about 8–10 mm.

Locality.—Nieuwveld Karoo: Beaufort West Distr.; Leeukloof (Mus. Staff, Oct. 1935) (Types): Fraserburg Distr.; Teekloof (Mus. Staff, Nov. 1935). S.E. Karoo: Graaff-Reinet (Mackie, 24–27/10/31). (In the Imperial Institute.)

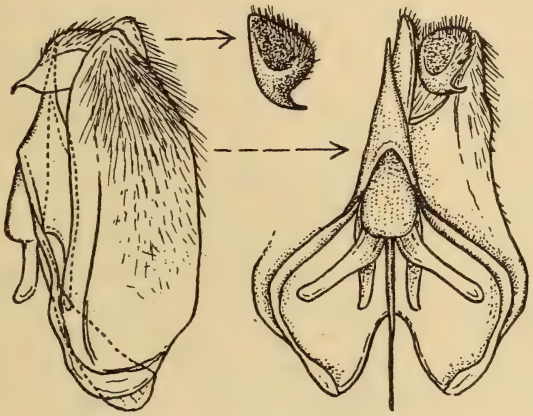
58 ♂♂ 42 ♀♀ *A. macrophthalmus* Bezz.

In his paper on the S. African Bombyliidae (p. 52, Ann. S. Afr. Mus., vol. xviii) Bezzi referred a ♂-specimen to this species, a description of which was reserved at the time for a paper on the Budapest Museum material. In 1922 the species was again mentioned and the ♀ partly described (p. 74, Broteria (Ser. Zool.), vol. xx, Fasc. II.). Finally, it was again referred to in the key to the Ethiopian species (p. 74, The Bombyliidae of the Ethiopian Region). As the material in the Hungarian Museum was never described separately in published form, I am appending a full description of *macrophthalmus* as based on Bezzi's labelled ♂-specimen and the very numerous ♂♂ and ♀♀ in the South African Museum and the 2 ♀♀ in the Imperial Institute.

Body predominantly black, the abdomen entirely without any red on the sides or across hind margins; scutellum also tending to be dark, only obscurely dark reddish brown discally towards hinder part; venter with indistinct and narrowish paler hind margins, usually hidden by the pubescence; legs with the coxae, trochanters and femora black in both sexes, only the extreme apices of the latter being yellowish, with the front and middle tibiae yellowish, the hind ones and the tarsi more brownish yellow to brownish especially in ♂♂, the last 2 or 3 tarsal joints even darker and apical two-thirds of the claws black; pubescence on the whole much shorter than in the *deserticolus* series, the bristles on body longer than the erect hairs and those on abdomen distinctly longer than the rest of pubescence, with the erect shortish pubescence on thorax above and that on abdomen above gleaming silky or silvery whitish, that on occiput even purer white, with the denser, woolly pubescence on face, genae, on sides of and head below, on pleural and pectoral regions, on sides of tergite 1 and slightly longer ones on sides of abdomen in basal half and tuft-like intermixed apically and at base of venter strikingly chalky or frosty white, with the hairs on ocellar tubercle, on frons, the bristles on frons in ♀♀, intermixed hairs on antennal joints 1, a patch of short hairs on each side above wing-bases, those more or less sparsely on disc of thorax, those more densely on

scutellum, the tuft-like patches chiefly on sides of abdomen above and longer and more conspicuous tufts apically, dark blackish brown to very dark purplish brown, those on scutellum and transversely on abdomen, however, with yellowish or pale bases, with the bristles on occiput, sides of frons anteriorly, especially in ♀♀, the curved bristles on face in front, the bristles on thorax in front, the macrochaetae and bristles on sides of thorax in front of wings and on mesopleural plate, the longish ones on posterior calli, those across hind margin of scutellum, yellowish, gleaming more golden brownish in certain lights, those on pronotal part often slightly darkened apically and even tending to be dark in ♂♂, with the transverse bristles on abdomen stoutish, longer and denser apically, very dark blackish brown to purplish brown to black, those at apex together with the blackish hair forming a conspicuous black or purplish black ring contrasting with the white apical tufts, most of the dark bristles on abdomen more or less pale or yellowish at their extreme bases, with the shorter bristles on venter sparser but also blackish, with the scale-like, flattened hairs on abdomen above, arranged more or less transversely and along midline apically, the broader and denser scaling behind eyes, those concentrated on each side along inner margins of eyes on face and genae, even forming a patch on each side of face and the scaling on venter chalky white, the scaling on legs dense, white on femora and more greyish on tibiae, the spines and spicules on legs yellowish; wings in ♂♂ with the basal part up to and across middle of basal cells subopaquely yellowish or yellowish white from there, dark smoky to blackish brown up to end of costal cell and across to end of fifth vein, the apical part of wings greyish hyaline, this dark band-like infuscation thus conspicuous and occupying most of the middle parts including the anal and axillary cells, where the infuscation is slightly more cinerous, with the wings in ♀♀ greyish hyaline to cinerous, tending to be uniformly cinereous greyish, only the costal cell and base, as in ♂♂, subopaquely yellowish, with the basal comb in both sexes dark blackish brown or purplish brown, the veins dark brown to blackish brown, appearing darker within the dark band in ♂♂ and with a tendency for the apical cross veins of basal cells, the base of vein between the discoidal and third posterior cell and the base of vein separating the submarginal cells to be distinctly darker and even spot-like in some specimens, with the alula yellowish and dark-bordered, the squamae opaquely yellowish and white-fringed; halteres yellowish or pale brownish, with very pale yellowish knobs. *Head* with the interocular space in ♂♂ above as broad as

tubercle, at narrowest part about as broad as slightly narrower front part of tubercle, the vertex very broad in ♀♀, nearly 6 times as broad as tubercle, thus giving the head a very broad and squat appearance; eyes in ♀♀ thus relatively small; antennae with joint 1 a little more than 4 to 5 times as long as joint 2, with joint 3 slender, almost rod-like, only very slightly thickened basally, the extreme apical part slightly more slender than rest of joint, the apex itself broadened, obliquely truncated, slightly cup-like or sucker-like; proboscis 3½–5 mm. long. *Legs* without any visible spines below on front femora;



Text-fig. 83.—Side view, half of ventral view, and dorsal view of beaked apical joint of ♂ *Anastoechus macrophthalmus* Bezz.

middle ones with 1–2 spines apically in front; hind ones with about 5–8 spines below; claws gradually and only slightly curved downwards from middle, slender in ♂♂, the pulvilli extending to about middle of claws in ♂♂, confined to base in ♀♀. *Hypopygium* of ♂ (text-fig. 83) with the beaked apical joints broad, foveately depressed above, the beak curved outwards and slightly upwards (*see* middle figure); aedeagus without a ventral process, the base being bell-shaped.

Length of body: about 5–8 mm.

Length of wing: about 5–8 mm.

Locality.—S. Karoo: Hex River (Dec. 1884). Central Karoo: Murraysburg Distr. (Mus. Staff, Nov. 1935). Nieuwveld Karoo: Fraserburg Distr. (Mus. Staff, Nov. 1935). Namaqualand: Van Rhyn's Pass (Cockerell, Nov. 1931) (in the Imperial Institute); Kamieskroon (Mus. Exp., Nov. 1936); Knersvlakte (Mus. Exp.,

Nov. 1936). Little Karoo: Willowmore (Brauns) (according to Bezzi).

The two ♀-specimens in the Imperial Institute have the spot-like infuscations on the cross veins and veins more distinct than in ♀♀ from the Karoo.

1 ♀ *A. eurystephus* n. sp.

This slightly denuded ♀, from South West Africa, in the British Museum, is so near *macrophthalmus*, as defined in this paper, that it may even prove to be only a northern variety of it.

Body black; scutellum ferruginous red discally; abdomen reddish along extreme sides below, more distinct on last 2 segments, with the last sternite also more distinctly reddish; legs yellowish, with the front and middle femora blackened to beyond middle and the hind ones almost entirely black, with about 4 pallid spines on hind ones below, with the claws only slightly curved and the pulvilli just about reaching middle of claws; pubescence above predominantly white, the hairs on disc of thorax pale yellowish brown to brownish golden in certain lights, with the hair transversely across apical half of second abdominal segment and across segments 5 and 6 distinctly yellowish brown or pale brownish golden in certain lights, with the tips of these individual hairs appearing darker, with indications, on the sides mostly, of darkish-tipped transverse rows also on segments 3 and 4 (the hair on abdomen discally in this specimen is, however, much denuded), with the transverse bristles across hind margins of abdominal segments paler and more yellowish on segment 2, becoming darker and more chocolate brownish posteriorly, especially on the sides, each bristle having a pale or yellowish base, with the bristles on venter pallid or yellowish, with the bristles on frons, intermixed ones on occiput, on sides of thorax, on base of thorax and on scutellum pale yellowish brown, those towards sides of thorax in front being paler still, with the long curved bristles on face whitish or white, with the pubescence on body below cretaceous white, with characteristic, flattened, broadish, scale-like, depressed pubescence on abdomen above, arranged more or less transversely across hind margins of segments, also denser and more concentrated along extreme sides, on sides of venter and on metapleural parts, very dense and conspicuous around the eyes and on genae; wings greyish hyaline, with a faint subopaque whitish tinge in certain lights, with the base, costal cell and first basal cell slightly subopaquely yellowish, with the basal comb yellowish, with the veins dark brownish, becoming more

yellowish towards base and along first longitudinal vein, with the apical cross veins of first and second basal cells distinctly infuscated and with a feeble indication of a darker infuscation at base of vein between discoidal and third posterior cells and also at base of vein separating submarginal cells, with the first posterior cell more or less acute apically. *Head* with the interocular space on vertex remarkably broad, at least 7 times as broad as tubercle, the entire head thus remarkably broad and squat, with the first antennal joint slender and about 4 times as long as joint 2 (third joints missing in the type-specimen), with the proboscis about 3 mm. long.

Type in the British Museum.

Length of body: about 8 mm.

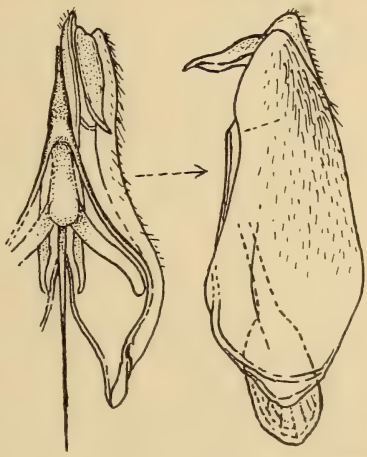
Length of wing: about 8 mm.

Locality.—S.W. Africa: Great Namaqualand; Aus. (Turner, Dec. 1929).

A. innocuus Bezz.

(P. 52, Ann. S. Afr. Mus., vol. xviii.)

This species is easily recognised by its soft creamy yellowish pubescence on body above, resembling that of *sericophorus* var. *congruens* n., the blackish or dark frontal hairs and bristles and the stoutish, dark-tipped or reddish brown transverse bristles on abdomen above especially towards apex, by the reddish venter and reddish abdominal sides in ♂, the femora which are blackened to beyond middle, the wings which are almost hyaline, only tinged subopaquely yellowish whitish in costal cell, base and first basal cell and which have a whitish basal comb and pale reddish brown to yellowish veins, by the slender, almost rod-like, third antennal joints which are only gradually thickened basally and by the short pulvilli in both sexes. The doubtful ♀ referred to by Bezzi (p. 53, loc. cit.) is only a smaller specimen, and the South African Museum also possesses another ♀ from the same locality, which is almost



Text-fig. 84.—Half of ventral view and side view of hypopygium of ♂ *Anastoechus innocuus* Bezz.

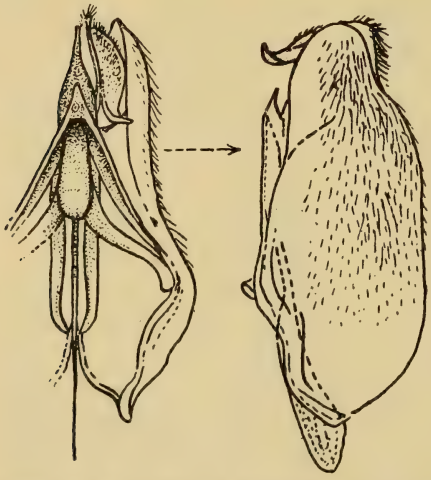
identical with the ♂ type. The ♀, however, has more dark bristles towards apex of abdomen and the dorsal interruption of the transverse rows of bristles is comparatively wide in both sexes. The face in front in ♀ at least has some distinct bristles.

Hypopygium of ♂ (text-fig. 84) with the beaked apical joints narrow, elongate, not foveately depressed above and with minute and scarcely visible pubescence above; aedeagus without an apically directed plate below; basal strut almost racket-shaped.

Locality.—Namaqualand and N.W. Karoo. (In the Imperial Institute and South African Museum.)

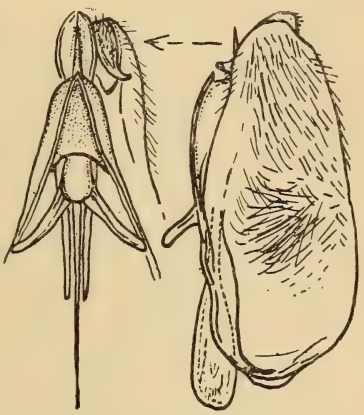
5 ♂♂ 8 ♀♀ *A. phaleratus* n. sp.

Black; antennal joint 1 with variable red, often entirely dark; hinder part or almost entire scutellum, sides of abdomen above and sometimes hind margins of segments and greater part of venter or at least broad hind margins of venter reddish to salmon pink; legs predominantly yellowish or ochreous yellowish, the middle and hind femora sometimes with a slight touch of brownish above towards apex, sometimes entirely yellowish, the last 2 or 3 tarsal joints brownish to dark brownish and apical parts of claws blackish; pubescence dense but not very long and shaggy, only that towards apex of abdomen long, that on thorax above in ♂♂ at least tending to have a slight cropped-off appearance, that on occiput, thorax above and densely on abdomen above ranging from pale sericeous yellowish to golden yellowish, that towards apex of abdomen in ♂♂ tending to become paler, even whitish in some specimens, witht he bristly hairs on ocellar tubercle, the bristles on base and sides of frons very dark purplish black, the bristles on occiput, thorax and scutellum pale yellowish or coloured like rest of pubescence on thorax, slightly



TEXT-FIG. 85.—Half of ventral view and side view of hypopygium of ♂ *Anastoechus phaleratus* n. sp.

tipped darker in some ♀♀, with the stoutish, transverse bristles across hind margins of abdomen above becoming longer and stouter apically and also longer than the hairs, entirely pale and yellowish in some ♂♂, with only a few apical ones tipped dark, with the bristles in ♀♀ and some ♂♂ dark purplish or blackish brown apically or in their apical halves or even almost entirely dark, those towards apical part of abdomen being especially conspicuous, with the bristly hairs on frons anteriorly, on antennal joint 1 and upper parts of sides of face pale yellowish, with the very dense, woolly pubescence and bristly hairs on face, genae and head below, that on pleurae, pectus, on sides of abdomen above and on venter chalky or cretaceous white, with the bristles on venter also whitish, with the scaling on legs dense, white on femora but becoming slightly more yellowish on tibiae; wings subopaquely pale greyish yellowish or pale yellowish brown, the base, costal cell, basal half of marginal cell, base of first submarginal cell, first basal cell, part of second basal cell, base of anal cell and base of alula more apparently yellowish and even slightly, more so in some ♂♂, the wings becoming more subopaquely greyish towards apex, the basal comb with blackish or purplish brown spines, the veins brownish, becoming paler and more yellowish at base and the costal margin dark, with the squamae opaquely yellowish white, with an almost whitish to pale creamy yellowish fringe; halteres pale yellowish brown and with almost white knobs. *Head* with the interocular space in ♂♂ above as broad as ocellar tubercle or only a very little broader, with the interocular space in ♀♀ broad, quite $4\frac{1}{2}$ to 5 times as broad as tubercle; antennae with joint 1 about $2\frac{1}{2}$, or a little more, times as long as joint 2, with 3 more or less club-shaped, broadest at about basal third, narrowed apically but distinctly more rapidly on inner lower side, giving the joints a slight humped appearance, the apical slender part slightly longer in ♀♀ than in ♂♂; proboscis about 4–$5\frac{1}{2}$ mm. long. *Legs* without any visible spines below on front femora; middle ones with 1 or 2 apical spines in front; hind ones with about 5–7 spines below from just before middle to apex;



Text-fig. 86.—Part of ventral view and side view of hypopygium of ♂ of a var. of *A. phaleratus* n. sp.

claws only slightly curved downwards and pulvilli confined to base of claws in both sexes. *Hypopygium* of ♂ (text-figs. 85 and 86) with the basal parts slightly produced apically on each side of the beaked apical joints which thus appear sunk in, are narrowish and elongate, without a distinct depression above; aedeagus with the base projecting slightly forwards, forming a slight ventral process (shown in figures).

Types in the South African Museum; paratypes in the British and Transvaal Museums, in the Imperial Institute and Union Agricultural Department.

Length of body: about 6½–10 mm.

Length of wing: about 7–10 mm.

Locality.—Central Karoo: Letjiesbos (Mus. Staff, Nov. 1935) (Holotype); Middelburg (Mus. Staff, Nov. 1935) (Allotype). Namaqualand: Lekkersing (Mus. Staff, March 1935). Little Karoo: Willowmore (Brauns 15/1/23). Nieuwveld Karoo: Fraserburg Distr. (Mus. Staff, Nov. 1935). E. Cape Province: Albany Distr. (Walton 11/11/22). O.F.S.: Bloemfontein (29/11/14). Transvaal: Marico; Zwartruggens (Brauns, 15/1/21). S. Rhodesia: Bulawayo (Rhod. Mus., 5/10/34). S.W. Africa: Great Namaqualand; Aus (Turner, Dec. 1929); Great Karas Mts. (Mus. Exp., Nov. 1936).

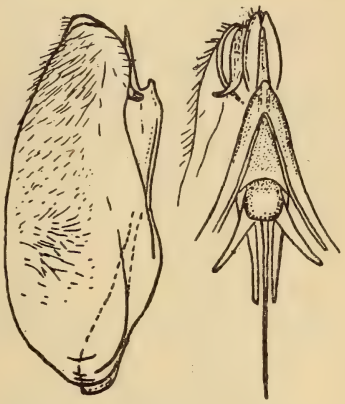
This species is fairly widely distributed in Southern Africa and is consequently subject to slight variations. The specimens from the Transvaal, O.F.S. and Rhodesia differ from the typical form in having the red on the abdomen in both sexes more extensive, the antennae also paler, the first joint usually more extensively reddish and with more numerous black-tipped transverse bristles on abdomen in both sexes. Specimens from the South-East appear to have the pubescence more golden in both sexes and interocular space in ♂ as broad as ocellar tubercle. Specimens from Namaqualand have more numerous dark-tipped bristles on abdomen in the ♂♂ and agree more with individuals from the Transvaal and O.F.S. The specimen from Lekkersing even has the wings slightly darker and distinctly more brownish.

Superficially this species is near *innocuus* Bezz., but may at once be distinguished by its characteristic third antennal joints, more yellowish pubescence on body, yellowish femora and distinctly more subopaquely yellowish wings.

1 ♂ *A. phaleratus* var. *albicerus* n.

Even this specimen may be considered as still another variety of *phaleratus*.

Body black; apices and inner side of antennal joint 1, the bases and apices of joint 3 yellowish and joint 2 slightly brownish; greater part of scutellum, broad sides of abdomen above and hind margins of tergites 3 and 4 and entire 5 and 6 pale reddish and entire venter yellowish reddish; legs also pale ochreous yellow, with the hind femora above more extensively darkened; pubescence above predominantly pale sericeous yellowish, appearing more uniformly creamy yellowish than in *phaleratus*, becoming paler and more whitish towards apex of abdomen, that on occiput and antennal joint 1 appearing more yellowish than rest of pubescence above, that on tubercle and base of frons blackish, that on face, genae, head below, pleurae, venter and to a certain extent on sides of abdomen frosty or chalky white, with the bristles on thorax and scutellum entirely pale yellowish, those transversely on abdomen dark blackish brown to purplish brown, their bases yellowish, but those apically more conspicuously dark, those on venter whitish near base, becoming more straw-coloured towards apical part of venter; wings more uniformly subopaquely yellowish than in *phaleratus*, the costal part, base, first and second basal cells and basal half of marginal cell also more distinctly pale yellowish, the rest of wing appearing greyish, with the veins more distinctly conspicuous than in *phaleratus*, appearing darker and more visible against the background owing to the presence of faint, but distinct, brownish infuscations along their courses, especially across the middle part of wing; head with the interocular space as broad as tubercle, with antennal joint 1 only about $2\frac{1}{2}$ times as long as 2, with 3 as in *phaleratus*, with the proboscis about $3\frac{1}{2}$ mm. long; legs with about 5 spines below on hind femora and with the claws as in *phaleratus*. *Hypopygium* as shown in text-fig. 87.



Text-fig. 87.—Side view and part of ventral view of hypopygium of ♂ *A. phaleratus* var. *albicerus* n.

Type in the Transvaal Museum.

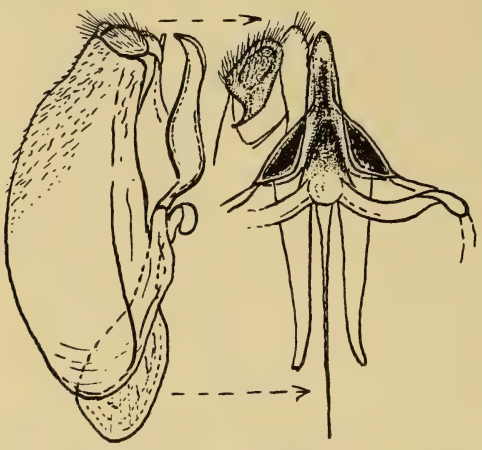
Length of body: about $9\frac{1}{2}$ mm.

Length of wing: about $9\frac{1}{2}$ mm.

Locality.—S. Rhodesia: Bulawayo (Stevenson, 19/10/21).

1 ♂ 1 ♀ *A. sericophorus* n. sp.

Body black; posterior discal part of scutellum (somewhat obscurely) and the extreme sides of abdomen in ♂ reddish; legs with the front and middle femora to beyond the middle and almost entire hind femora blackish or black and apical parts of tarsi also darkened; pubescence fine, dense and soft in appearance, predominantly gleaming sericeous whitish, especially in ♂, that towards apex of abdomen in ♂ especially more whitish, the hairs on ocellar tubercle and base of frons in ♂ yellowish, the bristly hairs and bristles on frons and tubercle in ♀ blackish brown, with all the bristles on occiput, thorax, scutellum and abdomen whitish like rest of pubescence, with the dense pubescence on face and genae and body below and on venter chalky whitish and the spines and spicules on legs almost white or at least whitish; wings slightly more powerfully developed in ♂, with the basal half up to end of costal cell and across the wings to apex of anal cell, including the alula, conspicuously yellowish brown in ♂, the infuscation appearing well demarcated, the rest of wings clear hyaline, in ♀ vitreous hyaline, only the base, costal cell, first basal cell and bases of second basal and anal cells tinged slightly yellowish, with the basal comb whitish, the veins dark brownish, with the lower half of squamae more or less subopaquely brownish or brownish yellow and the upper half almost whitish, fringed with white hairs. *Head* with the interocular space in ♂ broadish, at narrowest part a little wider than ocellar tubercle, in ♀ a little more than 4 times as broad as tubercle; frons in both sexes slightly more convex anteriorly than in other species; antennae with joint 1 scarcely 3 times as long as 2 in ♂ and about 3 times as long as 2 in ♀, with 3 broadest at about basal third, distinctly more rapidly narrowed from there along lower side, thus giving the joint a humped



Text-fig. 88.—Side view and part of ventral view of hypopygium of ♂ *Anastoechus sericophorus* n. sp.

appearance, with the apical part slender, the terminal style straight and short, the base above of joint 3 with an indication of white scaling; proboscis about $4\frac{2}{3}$–5 mm. long. *Legs* without any visible spines on front femora below; middle ones with about 2–3 spines apical behind; hind ones with about 6–7 shortish spines below from before middle to apex; claws sickle-shaped and the pulvilli reaching middle of claws in ♂ at least. *Hypopygium* of ♂ (text-fig. 88) with the beaked apical joints broad, foveately depressed above, the beak curved outwards; aedeagus (shown in the side view) is hidden below the ventral aedeagal process in the shape of a long and produced tongue-shaped process, the basal half of which is broadened and continuous on each side with the lateral ramus joined on to each basal part, the entire structure being simply a process formed by the fused anterior parts of the rami; dorsal basally directed aedeagal struts long and conspicuous.

Types in the British Museum.

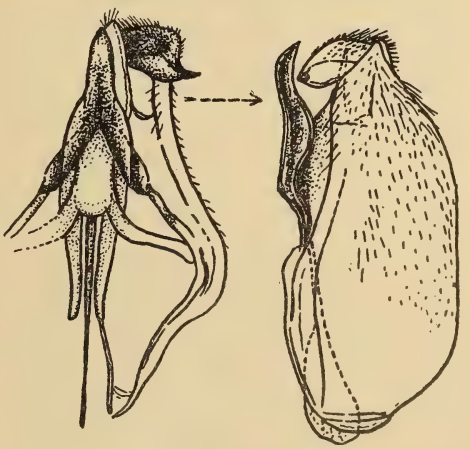
Length of body: about $7\frac{1}{2}$–10 mm.

Length of wing: about 9–10 mm.

Locality.—S.W. Africa: Great Namaqualand; Aus (Turner, Dec. 1929).

3 ♂♂ *A. sericophorus* var. *congruens* n.

Three ♂-specimens from the Karoo differ only in details from *sericophorus* and may be taken to represent a Karoo variety of this species. These specimens differ from the typical form in having the pubescence on body above slightly less whitish, tending to be more pale sericeous yellowish on thorax, even more distinctly sericeous yellowish on disc of thorax, in having the basal infuscated part of wings slightly paler and in two specimens at least paler yellowish and fainter, the rest of wings also less clear hyaline, appearing more



Text-fig. 89.—Half of ventral view and side view of hypopygium of ♂ *A. sericophorus* var. *congruens* n.

greyish, in having antennal joint 3 slightly shorter and even joint 1 quite 3, or even a little more, times as long as 2, with the proboscis about 4–4½ mm. long, with the hypopygium as shown in text-fig. 89.

Type in the South African Museum.

Length of body: about 7–8 mm.

Length of wing: about 8–9 mm.

Locality.—Central Karoo: Murraysburg Distr. (Mus. Staff, Nov. 1935) (Type). Little Karoo: Willowmore (Brauns, 17/11/16) (in the Transvaal Museum).

2 ♀♀ *A. dolosus* n. sp.

These two specimens, though superficially very near and almost identical with ♀♀ of *phaleratus*, yet differ in important details which point to a separate specific position. From the typical ♀-*phaleratus* and slight varieties of it, it differs in the following characters:—

Abdomen with the red on sides, usually conspicuously developed in *phaleratus*, very much reduced or obscure, practically only visible on sides of tergite 1 and as narrowish hind margins and sides on apical tergites or even only on last few tergites; pubescence predominantly pale golden yellowish above as in some ♀♀ of *phaleratus*, with similar dark blackish brown bristles on ocellar tubercle, frons and sides of frons, but without any trace of dark or dark-tipped transverse bristles on abdomen, these being all entirely sericeous yellowish like those on thorax, with the pubescence on face (excepting a few darkish bristles), genae and entire body below also chalky whitish as in *phaleratus*; wings not distinctly subopaquely greyish yellow or yellowish brown, but distinctly clearer, more hyaline, only the base, costal cell, basal parts of marginal cell and first and second basal cells subopaquely pale yellowish and the basal comb entirely pale yellowish, not with dark brownish spines. *Head* with the interocular space on vertex distinctly narrower, only about 3, or a little more, times as broad as tubercle; antennae with joint 1, though apparently shorter than in *phaleratus*, yet longer in relation to joint 2, quite 3 times as long as joint 2, with joint 3 shaped as in *phaleratus*, broadest at basal third and more rapidly narrowed along lower surface; proboscis about 5 mm. long. *Legs* also predominantly yellowish and with a tendency for hind femora to be darkened above apically, but also with a tendency for the femora to be slightly darkened at extreme bases; front femora without visible spines below; middle ones with about 2 spines in front and hind ones with about 5–6 spines

below; claws distinctly more sickle-shaped, more curved downwards and with the pulvilli longer, about reaching middle of claws.

Type in the South African Museum.

Length of body: about 7–7½ mm.

Length of wing: about 8–9 mm.

Locality.—Central or Great Karoo: Murraysburg Distr. (Mus. Staff, Nov. 1935).

30 ♂♂ 8 ♀♀ *A. leucochroicus* n. sp.

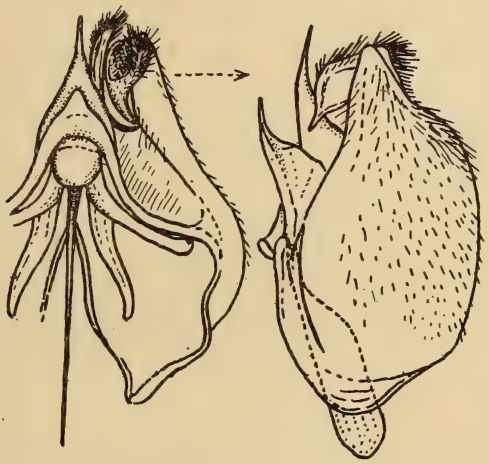
(Syn. = *cervinus* Bezz. nec Loew.)

On p. 50 in the Ann. S. Afr. Mus., vol. xviii, Bezzi referred this species and partly described it as *cervinus* Lw. From Loew's description of *cervinus*, which I have established as a synonym of *rubricosus* (Wied.) (*see* under *rubricosus* (Wied.)), it is quite evident that this species is quite different and may be distinguished at once by being slightly larger, by the very much narrower interocular space, much paler pubescence, very much narrower red hind margins of abdominal segments, at least on disc, absence of transverse rows of dark yellowish or ochreous hairs and blackish brown bristles on abdomen above, etc.

Body black; face yellowish or reddish in front; scutellum, sides of abdomen broadly in ♂♂ as well as hind margins of abdominal segments 5–7 in ♂♂ and extreme sides of segments 5–7 in ♀♀ reddish, the sides in ♂♂ being very pale orange red or salmon pink; hind margins of segments above narrowly ivory whitish or yellowish; venter and exposed genitalia in ♂♂ very pale brownish yellow to reddish, the narrow hind margins pale yellowish, in ♀♀ the genital segment is yellowish; the neck medially below and a triangular area on each side in front of front coxae very pale yellowish or ivory like (as in the majority of species of this section as well as in most other species of *Anastoechus*); legs very pale brownish or ochreous yellow, with the bases or basal halves of front and middle femora and the upper surfaces of the hind ones blackish brown to black, covered with white scaling, with the hind tibiae slightly more brownish yellow on upper surfaces and the tarsi, especially towards apices, more brownish, the claws almost entirely black, only the bases pale brownish; pubescence, viewed from above, greyish white to yellowish, becoming whitish towards apex of abdomen, with the "shorn-off" and short hair on thorax very pale sericeous whitish to yellowish, showing velvety reflections in different lights and almost entirely sericeous whitish in

♂♂ from in front, in ♀♀ with a slightly more creamy or sericeous yellowish tint, that on abdomen above fine and dense, distinctly soft sericeous or silvery white from side, paler in ♂♂ where the salmon pink part or red sides show lividly through the white hair, with the flattened scale-like hairs on sides of frons anteriorly, very densely on face, genae and below eyes laterally, the hair on head below, that on pectoral and pleural regions, a puff-like tuft along upper part of mesopleuron and in front of wing-bases, metapleural tuft and venter chalky or cretaceous white, with pale yellowish pubescence on frons in ♀♀, with the bristly hairs on ocellar tubercle in ♂♂ yellowish, in ♀♀ more brownish yellow to brown, with the fine bristly hairs on sides of frons in ♂♂ very pale yellowish white and the stouter, denser and longer ones in ♀♀ golden or brownish yellow and even dark blackish brown ones on sides, with some of pubescence on face in front in ♀ yellowish, white in ♂♂; macrochaetae and bristles in front of wings, posterior callar bristles, scutellar bristles and transverse rows on hind margins of abdominal segments above pale yellowish white in ♂♂, bristles towards apex of abdomen being almost entirely white, in ♀♀ scarcely more yellowish, with the transverse bristles slightly stouter in ♀♀ and often more reddish brown or even tipped dark brownish especially towards apex, both bristles and hair much longer towards apex in both sexes, the dorsal interruption narrow, the ventral bristles white in ♂♂ and more straw-coloured in ♀♀; wings with the following pattern in ♂♂: the extreme base, costal cell and first basal cell more or less subopaquely pale yellowish, with the basal half of marginal cell, base of first submarginal cell, basal halves of first posterior and discoidal cells, extreme base of third posterior cell and more or less the basal three-quarters of fourth posterior cell, the apical part of first basal cell, the apical part of second basal cell and apical part of anal cell, slightly more brownish, the infuscation being more evident along the veins in this area, the rest of wing hyaline, in the ♀♀ the pale brownish infuscation is not represented, the entire wing being almost hyaline, only the costal cell, base and first basal cell being subopaquely yellowish as in ♂♂, with the basal comb in both sexes pale yellowish to pale brownish, being slightly darker distally and the hair-like scaling behind being white at base, with the veins brownish, reddish brown to dark brown, becoming paler and often more yellowish towards base, the first longitudinal vein distinctly reddish brown, the squamae very large, opaquely pale yellowish, with white fringes; halteres yellowish, with almost white knobs. *Head* with the interocular space in ♂♂

comparatively narrow, at narrowest part much narrower than behind, about as broad as narrow front part of tubercle, or slightly broader than front ocellus, in ♀♀ very broad, quite 4½ times as broad as tubercle; eyes in ♂♂ with the upper facets comparatively coarse; antennae with joint 1 in ♂♂ apparently shorter than in ♀♀, only a little more than 2 times as long as joint 2 in both sexes, with joint 3 thickened in basal half, broadest at about basal fourth, rather rapidly narrowed to very slender apical third or more, the upper edge (viewed from side)



Text-fig. 90.—Half of ventral view and side view of hypopygium of ♂ *Anastoechus leucochroicus* n. sp.

rather more rapidly narrowed, thus showing a slight bulging at about basal third, more distinct in ♀♀, with the apex slightly dilated and with the first terminal joint inconspicuous and the style insignificant; proboscis about 5–7 mm. long. *Legs* with 1–2 spines on front femora in front, 3–5 on middle ones in front and 1–2 behind; hind femora with about 10–15 spines below, of which the basal ones are often very small; claws only very slightly curved from about middle and the pulvilli extending to about a third or less the length of claws. *Hypopygium* of ♂ (text-fig. 90) with the basal parts broad, the neck region short and narrow, the dorsal part, on each side of line of junction, raised ridge-like; apical beaked joints broad, foveately hollowed out above and with dense spine-like hairs laterally above; aedeagus slightly dorso-ventrally compressed, the apical part projecting slightly beyond bases of apical joints; lateral rami fused anteriorly at base of aedeagus into a flattened horizontal plate,

produced into a sharp point as a ventral aedeagal process; basal strut elongate, bat-shaped and projecting only slightly beyond basal parts.

Types in the South African Museum.

Length of body: about 10–13 mm.

Length of wing: about 11–14 mm.

Locality.—Central Karoo: Murraysburg (Mus. Staff, Nov. 1935) (Types); and Bezzi's labelled specimen without locality label.

This species is very near the following species, *varipecten* Bezz., but may at once be distinguished by the much paler and more whitish pubescence above, the thorax being whitish and not ochreous or brownish yellow above, the wing-pattern is the same, but the infuscation is slightly less dark, and in ♀♀ is distinctly more hyaline, with the basal comb very pale yellowish, not brownish; transverse rows of bristles on abdomen not so constantly brownish, but sometimes whitish or very pale yellowish in both sexes; sides of abdomen in ♀♀ as well as hind margins less extensively red; bases of femora and hind ones above blackened; interocular space in ♂♂ about half as narrow; frontal bristles much paler and the third antennal joints, at least in ♀♀, slightly more humped above before middle.

A. varipecten Bezz.

(Pp. 48–49, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species was rather fully described by Bezzi. It is one of the larger and bulky species of *Anastoechus*, superficially resembling *leucochroicus*. It is characterised as follows:—*Body* with the abdomen on sides in ♂♂ very distinctly and broadly red, less extensively red on sides in ♀♀, the hind margins of tergites discally red in both sexes, with the first antennal joints, front half of frons, the entire face, the scutellum, the hind margins of sternites and even sutural parts of pleurae salmon reddish or pinkish; legs yellowish red or yellowish; pubescence short as in *leucochroicus* and *rubricosus*, that on disc of thorax with a closely cropped-off appearance and even that on abdomen much shorter and not shaggy as in *deserticolus*, the bristly elements on abdomen, even in ♀♀, shortish like those of *leucochroicus*, the pubescence on face and genae very dense, short, matted and composed practically only of scale-like elements, the pubescence on body above very pale gleaming sericeous yellowish on thorax and scutellum in ♂♂, deeper golden to even more brownish golden in ♀♀, that on abdomen above in ♂♂ gleaming sericeous creamy yellowish,

becoming more whitish sericeous apically, appearing almost entirely sericeous whitish in certain lights in some ♂♂, that on abdomen above in ♀♀ gleaming pale sericeous yellowish, golden yellowish to deep golden, the bristles on ocellar tubercle and on sides of frons almost black in ♀♀, the rest of the bristly elements and pubescence on frons, antennae above and face above in ♀♀ gleaming golden, that on face above at least also with some yellowish elements, the entire pubescence on frons, antennae and face above in ♂♂ very much paler and whitish or white, with the bristles on thorax, post-alar calli, scutellum and across hind margins of tergites in ♂♂ very pale yellowish white, those towards apex of abdomen more whitish and those towards base and sides sometimes tipped more distinctly yellowish, with all these bristles in ♀♀ deeper yellowish to yellowish brown, those on abdomen even tipped more dark brownish or reddish brown, the dense and matted pubescence on face, genae, head below, behind eyes, extensively on pleurae and even extending up in front of wing-bases and that on venter and sides of abdomen below chalky or cretaceous white, only the sparse bristles on venter, especially in ♀♀, more yellowish; wings much as in *leucochroicus*, vitreous hyaline, the base, costal cell, first basal cell and a broadish transverse infusion from end of costal cell across basal halves of marginal, first submarginal, first posterior and discoidal cells to ends of fourth posterior and anal cells in ♂♂ yellowish brown to brownish, the greater part of second basal cell and anal cell and axillary lobe being more hyaline, with the base, costal cell, first basal cell, basal halves of marginal, first submarginal and first posterior cells and sometimes extreme base of discoidal cell in ♀♀ tinged yellowish to pale yellowish brown, the base and costal cell, however, deeper yellowish as in ♂♂, with the veins brownish or reddish brown, becoming more yellowish towards base, with the basal comb whitish, its spines ochreous brownish to chocolate brownish, with the squamae opaquely yellowish and fringed with snow white hair, the squamae comparatively large and broad; halteres yellowish, with very pale knobs. *Head* with the interocular space above in ♂♂ as broad as ocellar tubercle, in ♀♀ quite 5 times as broad as tubercle; antennae with joint 1 about 2, or a little more, times as long as 2 in ♂♂, quite 3 times as long as 2 in ♀♀, the upper apical part slightly projecting over base of joint 2, with 3 elongate, broad basally and rapidly attenuated apically, the apical third or half very slender, ending apically in a shortish style; proboscis about 6–8 mm. long, rather stoutish. *Legs* without any hairs below on femora, with usually 1 spine in front on front femora; middle ones

with about 3–10 spines in front and 2–4 behind; hind femora with about 9–14 spines below; claws only very slightly curved, almost straight and with the pulvilli short, confined to base of claws. *Hypopygium* of ♂ much like that of *leucochroicus* (cf. text-fig. 90) but with the apical joints comparatively shorter and the beak shorter; aedeagus much shorter, not reaching apices of inner apical angles of basal parts, the ventral scoop-like or horizontal process less pointed apically; basal strut slightly longer.

In the Imperial Institute, Transvaal and South African Museums.

Length of body: about 11–15 mm.

Length of wing: about 11–15 mm.

Locality.—North West Cape Province and Namaqualand.

A ♀-specimen in the Imperial Institute is labelled as coming from "Durban, the Bluff (coll. Miss Mackie, 10/1931)." There is no doubt about it that this locality label is wrong. This species is a typical Namaqualand and North Western Cape species. As Prof. Cockerell and his party also collected in the North West Karoo, it is probable that some confusion in the localities may have taken place.

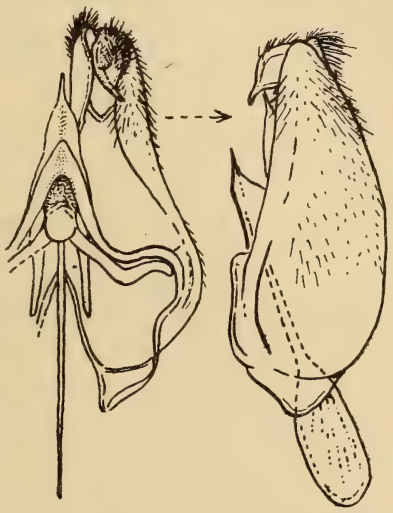
A. rubricosus (Wied.)

(P. 341, Aussereurop. Zweifl. Ins. Dipt. i, 1828.)
(Syn. = ♂-*cervinus* Lw., p. 188, Dipt. Faun. Südafr., i, 1860.)

In his paper on the South African Bombyliidae, on p. 47, Ann. S. Afr. Mus., vol. xviii, Bezzi refers several specimens from Namaqualand and Bushmanland to *rubricosus* (Wied.), probably on the authority of Bigot, who previously determined a large ♀-specimen from O'okiep as such. A careful comparison with Wiedemann's description, however, seems to show that these specimens, described by me as *deserticolus* n. sp. (*see* under *deserticolus*), although conforming in certain features with the description, cannot be retained in *rubricosus*. On the other hand, there is no doubt that Loew's species *cervinus*, as he himself in a footnote suspects, is the ♂ of *rubricosus* or a form of it and of which it may be considered as a synonym.

To Loew's admirable description of the ♂ there is nothing to be added, but to Wiedemann's short description of the ♀ the following may be added:—The general colour of the pubescence is the same as in the ♂, the bristly hairs on the ocellar tubercle and sides of frons are more extensive and also dark brownish black, the venter is slightly less extensively white, the first antennal joints are more or less dark reddish brown, not black; the red hind margins of abdominal seg-

ments above are narrower and not extensively and broadly red on sides as in ♂; interocular space slightly more than 3 times as wide as ocellar tubercle; wings greyish hyaline and infuscated with brownish as in ♂, but this broad pale brownish band comparatively much fainter and not distinctly distinguishable across discoidal cell to hind margin as in ♂, thus giving the appearance that the anterior half from second basal cell, basal half of first posterior cell and basal halves of second submarginal and marginal cells up to slightly beyond end of first longitudinal vein is tinged pale brownishly; legs coloured as in ♂, very pale yellowish, with the upper part of hind femora also blackened though hidden by dense scaling, with all the spines as in ♂ yellowish, with only 1 spine on front femora in front, 4–6 in front on middle ones and with about 9–12 spines below on hind femora in both sexes, with the claws gradually curved to apex and the pulvilli short, scarcely or not reaching middle of claws.



Text-fig. 91.—Half of ventral view and side view of hypopygium of ♂ *Anastoechus rubricosus* (Wied.).

Hypopygium of ♂ (text-fig. 91) differs from that of *leucochroicus* (cf. text-fig. 90) in having the basal parts less broad, more elongate, the neck region thus less rapidly narrowed; apical beaked joints smaller, with the foveate depression above much smaller and the beak much shorter; aedeagus falling far short of the bases of the apical joints; ventral aedeagal process, formed by fused rami, more arch-like, narrower and less pointed in front; lateral struts also shorter and rapidly bent apically; basal strut comparatively much shorter, more racket shaped, but projecting considerably beyond bases of basal parts.

Locality.—Western Cape Province.

The species is near *varipecten*, from which it is separated in the key.

10 ♂♂ 16 ♀♀ *A. fuscianulatus* n. sp.

These specimens differ from *rubricosus* practically only in colour details and may even be taken to be Eastern Province representatives or an Eastern variety of it. Compared with *rubricosus* the general effect of the pubescence is paler, that on front part of thorax, in ♂♂ at least, distinctly paler and more creamy whitish or yellowish, that on abdomen above, viewed from the side, not pale yellowish, but distinctly white and, viewed from above, also whitish, even in ♀♀ the abdominal hair is much whiter, having a silvery sheen, that on pectoral and pleural regions and also on venter distinctly more uniformly snow white, the posterior bristles on upper part of mesopleuron, metapleural bristles and tuft and ventral bristles in ♂♂ pure white, not straw-coloured or yellowish, the pubescence and bristles on sides of frons anteriorly, on antennae below and face in front, also laterally above, entirely snow white, not ochreous or yellowish, with only a few bristles laterally on frons in front and above first antennal joints slightly yellowish and often with a few inconspicuous yellowish or darkish ones on face in front, the bristly hairs on ocellar tubercle, on sides of frons dark purplish or brownish black, darker than in *rubricosus*, with the narrow elongate patch of scaling along inner margin of eyes on frons not ochreous yellow but deeper brownish or fulvous, pubescence on abdomen with the transverse bands of dense bristly hairs across hind margins slightly denser, usually much darker, brownish and not yellowish brown, the apices of the hairs distinctly darker and more purplish brown, with the transverse rows of stiff bristles behind them also darker, usually almost entirely purplish black, only their extreme bases paler, and with the bristles towards apex comparatively shorter as compared with those of *rubricosus*; first antennal joints, in ♀♀ at least, distinctly reddish brown; the reddish hind margins of abdomen above in ♂♂ also very broad laterally, also comparatively broad in ♀♀, even broader than in ♀♀ of *rubricosus* and with segments 4–7 in some specimens being almost entirely red above, with the extreme hind margins in both sexes yellowish, not conspicuously and broadly ivory white; wings in ♂♂ with the infuscation in basal two-thirds also pale brownish yellow, extending from apex of costal cell obliquely and more or less straight across to apex of anal cell, the costal cell, extreme base, first and second basal cells, basal halves of marginal, first submarginal and first posterior cells, basal two-thirds of discoidal cell, base of third posterior cell, basal three-quarters of fourth posterior cell, anal cell

and also alula being distinctly pale yellowish brown, the greater part of axillary cell distinctly less tinged, the rest, or apical part, of wings more hyaline and distinctly less greyishly tinged than in *rubricosus* and also more distinctly delimited from infuscated part, which is thus less extensive and extending less into clear apical part of marginal cell, in ♀♀ as in ♀♀ of *rubricosus* and the basal infuscation is also feebler than in ♂♂, being evident only at base, in costal cell, first and second basal cells, basal half of marginal cell and fainter still in basal half of first posterior cell, extreme base of fourth posterior cell and anal cell, the infuscation, however, darker than in *rubricosus*, with a tendency for second longitudinal vein to be less sinuous at its end, the discoidal cell to be comparatively narrower, with the basal comb black, not yellowish or pale brownish yellow. *Head* with the interocular space in ♂♂ as in *rubricosus*, in ♀♀ quite 4, or a little less, times as broad as tubercle, with antennal joint 3 in ♀♀ comparatively broader at base and the lower margin from there more rapidly narrowed apically than above, the apical part even being slightly more slender than in *rubricosus*, with the first terminal joint not distinct; proboscis about 6–7 mm. long. *Legs* coloured as in *rubricosus*, the front femora armed with 1 spine, the middle ones with 2–4 in front and usually fewer on hind femora than in *rubricosus*, with about 5–9 spines below as against 9–12 of *rubricosus*, with the claws and pulvilli as in the latter species. *Hypopygium* of ♂ also very similar to that of *rubricosus*, the basal parts also elongate; apical beaked joints with the foveate depression above small; aedeagus reaching bases of apical joints, but not extending to apices of inner apical processes, the ventral aedeagal process not sharply pointed, only bluntly rounded in front and the posterior aedeagal struts also shorter; basal strut more bat-shaped, thus distinctly narrower.

Holotype in the Transvaal Museum, allotype in the South African Museum and paratypes in Albany Museum.

Length of body: about 7–10½ mm.

Length of wing: about 7–11½ mm.

Locality.—East Cape Province: Grahamstown; Resolution (Walton, 15/11/27 and 23/11/27) (Types); Fort Brown (Walton, 15/1/28). Little Karoo: Willowmore (Brauns, 4/17).

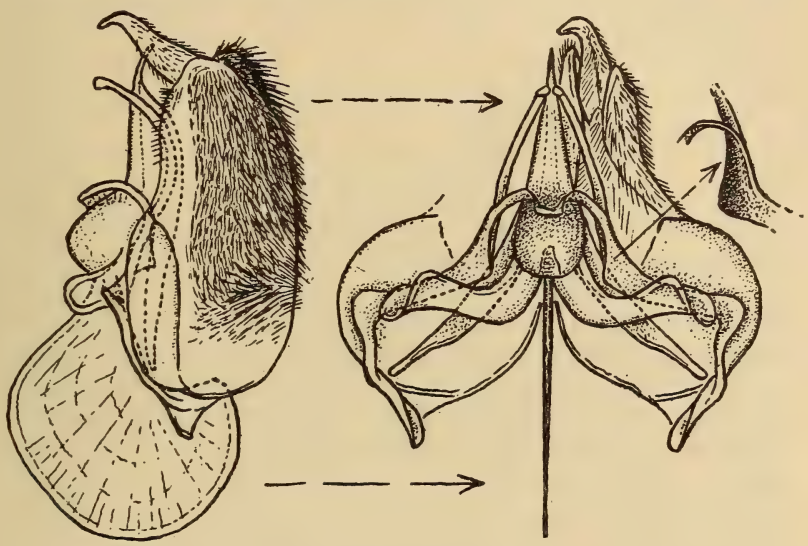
Gen. *Systoechus* Lw.

S. fuligineus Lw.

(P. 13, Wien. Ent. Monat., vii, 1863.)

On p. 45 in the Ann. S. Afr. Mus., vol. xviii, Bezzi partly describes a ♀-specimen from Spektakel in Namaqualand as *fuligineus* Lw., which, however, does not agree with the description of Loew. It is, as a matter of fact, an undescribed species, which I have named *namaquensis* n. sp. farther on. I have before me, however, ♂♂ and ♀♀ from Fransch Hoek, Gordon's Bay, Burghersdorp, Willowmore and Calvinia, which agree better with Loew's very short description and which I believe to be the species Loew had before him. It appears that this species has not been recorded since 1863. The specimens, which I refer to this species are, however, very characteristic and are easily recognised by their large size (12–16 mm.), the entire black to blackish brown or velvety black pubescence, which on the abdomen above and the venter, in certain lights, has a soft dark purplish brown to brownish fuscous tint, the transverse rows of bristles on the abdomen also black; scutellum, sides of abdominal segments broadly above even in ♀♀ and to a certain extent the hind margins towards apex and last tergite more or less ferruginous red, reddish or obscure reddish and hidden by the dense hair ; wings infuscated very darkly sooty blackish, the infuscation extending obliquely from above end of first longitudinal vein across basal half of first submarginal cell, base of discoidal cell, basal cross vein of fourth posterior cell to base of anal cell, with the infuscation along third longitudinal vein, vein between first posterior and discoidal cells, discal cross vein and basal cross vein of fourth posterior cell and along vein between second basal and anal cells more evident and darker, with the rest of wing very smoky or cinerous, merging almost imperceptibly into the black anterior infuscation, with the basal comb black; halteres dark, with slightly yellowish knobs ; legs black, with the spines black, the front femora with about 5–8 small and longer spines in front and 3–7 behind, the middle ones with about 8–11 in front, 5–7 behind and the hind ones with about 12–17, or even more below, with the pulvilli pallid, short and only about half as long as claws which are gradually curved downwards apically ; head with the interocular space in ♂♂ nearly or about $1\frac{1}{2}$ times as broad as ocellar tubercle, a little more than 3 times as broad as tubercle in ♀♀, with dense bristles laterally and a distinct central furrow on frons, with joint 3 of the antennae

less than 1½ times as long as 1 and 2 combined, constricted at base, thickened in basal half, rather rapidly tapering apically at first, but more rapidly along inner margin, the apical part slender, with the first terminal joint conical and about as thick as apex of 3, with antennal joint 1 about 2½ times as long as 2, with the proboscis about 7–9 mm. long and the numerous spinules on labium below distinctly visible. *Hypopygium* (text-fig. 92), with the beaked apical joints



Text-fig. 92.—Side view and part of ventral view of hypopygium of ♂ of *Systoechus fuligineus* Lw.

bent downwards and slightly inwards apically, with the lateral rami produced in front into a narrow strap-like process on each side of aedeagus and also giving off a branch, which, fused with the opposite one, forms an arch at base of aedeagus, with the basal strut very broad and subracket-shaped and subangularly incised along its dorsal margin.

Locality.—Western Cape Province, North-Western and Eastern Karoo, North-Eastern Karoo and Orange Free State.

In the Transvaal and South African Museums and Imperial Institute.

The specimens from Willowmore, from Calvinia and Burghersdorp show a more distinct deep velvety blackish brown to velvety brown sheen, even on the thorax above and the pleural regions, in which respect they agree more with Loew's description and probably represent the type-form, whereas the deeper black ones from the

Western Province, under more humid conditions, represent a Southern form. Superficially this species also resembles *Bombylius analis*, but is without an apical white or yellowish tuft and the wings are infuscated. It is the only entirely black *Systoechus* in South Africa known to me and differs from *S. austeni* Bezz., the other black species described by Bezzi (p. 71, The Bombyliidae of the Ethiopian Region), in not having "practically" hyaline wings. This species frequents rocky hills where it may often be found settling on rocks and contrasting markedly with the surroundings.

S. scabrirostris Bezz.

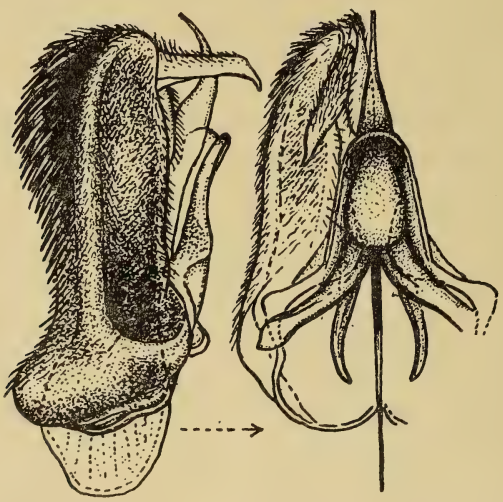
(P. 37, Ann. S. Afr. Mus., vol. xviii, Pl. I, fig. 8, 1921.)

This is a very interesting species of *Systoechus* not only in the coarsely spinulated proboscis but in other characters as well. The species is characterised as follows:—

Body predominantly black, with the greater part of frons in ♀♀, the entire face, genae and head below in both sexes, to a certain extent antennal joint 1 in ♀♀, the post-alar calli, the scutellum in both sexes, the sides of abdomen broadly in ♂♂, the hind margins of sternites and sometimes the sutural parts of the pleurae reddish brownish to ferruginous reddish; legs predominantly yellowish brownish, the femora sometimes darker brownish above in some ♂♂ and the apical parts of tarsi also slightly darkened above, with the spines and all the spicules and apical parts of claws dark or black; pubescence shortish, that on thorax above with a closely cropped appearance, that on abdomen, even in ♀♀, not shaggy or bushy, that on face sparse and short, the greater part of face tending to be semi-bare, only the front margin with a shortish fringe, the pubescence on body above predominantly gleaming pelt-like greyish sericeous in ♂♂, more whitish sericeous on abdomen in certain lights, that in ♀♀ with a more brownish sheen due to reddish brown bristles, but on sides also gleaming greyish sericeous, with 3 broadish longitudinal bands of fulvous brownish, or in ♀♀ deep reddish fulvous pubescence on thorax above which are separated by narrower bands of greyish or whitish sericeous gleaming hair, with the hair on each side in front of wings also fulvous brownish to deep reddish brownish, that on sides of abdomen basally in ♀♀ also with a fulvous tint, the fine pubescence on face and frons gleaming greyish sericeous in ♂♂ to slightly yellowish in ♀♀, with the bristly elements on ocellar tubercle, frons, face anteriorly, on sides of thorax in front of wings in both sexes yellowish red,

reddish to reddish brown, those in ♂♂ even sometimes darker and in ♀♀ sometimes even purplish red, the post-alar bristles very long, gleaming sericeous whitish to pale yellowish in ♂♂, their basal parts in ♀♀ more reddish or they tend to be more reddish in ♀♀, with the bristles on scutellum and on abdomen in ♂♂ pale yellowish, their apical parts gleaming sericeous whitish, the bristles on extreme sides of abdomen in ♂♂ reddish brown to brownish but pale-tipped, with the bristles on scutellum and abdomen in ♀♀ predominantly and conspicuously deep reddish, wine-reddish to reddish brown, with the pubescence on body below very characteristic, consisting of silvery whitish hair on head below, behind eyes and on front part of pectus a very broad vertical band of gleaming silvery whitish hair on pleurae, extending down from below wing-bases to pectus between front and middle coxae and silvery white gleaming hair on posterior margin of metapleurae, across base of venter to tergite 1, these contrasting silvery white bands being separated by 2 broad vertical bands of brownish fulvous or gleaming brownish golden hair, one extending from in front of wings down to front coxae and the other from squamae down to middle and hind coxae, the bristles on the coxae and the metapleural tuft thus also deep reddish brownish, with the pubescence towards apex of venter also gleaming deep velvety brownish, the pubescence basally on extreme sides of tergites, especially in ♀♀, also gleaming fulvous brownish, with the sparse bristles on venter whitish towards base but more reddish brownish towards apex; wings greyish hyaline, but with a distinct, though faint, reddish or brownish tinge, the base, costal cell and from end of costal across to apical part of second basal cell basalwards subopaquely reddish brown, this darker part merging almost imperceptibly into the more hyaline part, with the basal comb well developed, dark purplish brown but with greyish sericeous fine pubescence above and below, with the veins reddish brown to deep reddish brown, more reddish basally, the first longitudinal and the fifth longitudinal veins reddish, with the squamae subopaquely yellowish to brownish and fringed with gleaming sericeous whitish hair; halteres with the yellowish knobs slightly brownish or darkened below. *Head* with the eyes in ♂♂ separated above by a space quite 1½ times as broad as ocellar tubercle, in ♀♀ about 4 times as broad as tubercle; frons in ♀♀ with a deep transverse depression in front of tubercle, with a central furrow in ♂♂; antennae with joint 1 shortish, only about or nearly 3 times as long as 2, with 2 transverse, with 3 tending to be somewhat club-shaped, broadest near base, narrowed apically, more

rapidly in ♀♀, ending apically in a distinct basal element bearing a shortish style; facial part conical and slightly spout-like; proboscis long, about 11–13 mm. long, with the spinules on labial part below very conspicuous and dense, those nearer base even denser and the base of proboscis transversely ridged or wrinkled to a greater extent than in any other species; palps hairy, not visibly separated into joints but slightly more clavate in apical part. *Legs* without any hairs on femora below, with about 6–9 spines in front and 5–11



Text-fig. 93.—Side view and half of ventral view of hypopygium of ♂ of *Systoechus scabrirostris* Bezz.

behind on front femora; middle ones with about 7–12 in front below and about 7–8 behind; hind femora with about 16–25 spines on outer side below, these spines somewhat irregular towards base and sometimes alternating as long and shortish ones, with also a row of smaller spines on inner side below; claws *Anastoechus*-like, only gradually curved, the pulvilli just falling short of middle of claws in both sexes. *Hypopygium* of ♂ (text-fig. 93) very characteristic, with the lateral parts of basal parts raised prominently ridge-like, the lateral lower surfaces strigilose and rugulose, more so towards apex, with the dorsal and apical two-thirds covered with very dense, conspicuous, stoutish and longish, stiff, spine-like blackish brown hairs, more or less arranged in a mane or crest on outer dorsal part of neck region and also along dorsal margin of inner apical angles; beaked apical joints narrow and elongate, sunk in between the inner and outer

apical parts of basal parts, not depressed above; lateral ramus from each side forming a conspicuous arch over base of aedeagus; aedeagus curved upwards and without any processes; basal strut chopper-shaped.

In the South African Museum and Imperial Institute.

Length of body: about 13–16 mm.

Length of wing: about 14–16 mm.

Locality.—Karoo and Namaqualand.

This species and *fuligineus* differ from all other known species in Southern Africa in having gradually curved claws, short pulvilli and eyes in ♂♂ which are more broadly separated than the ocellar tubercle.

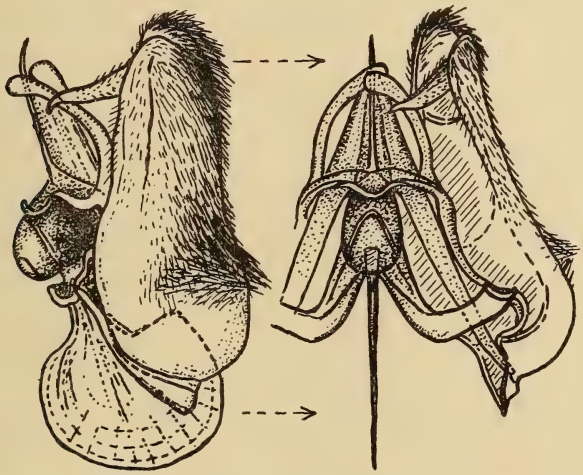
9 ♂♂ 16 ♀♀ *S. bechuanus* Hesse.

(P. 163, Ann. Trans. Mus., vol. xvii, 1936.)

Body black; posterior aspect of ocellar tubercle, often the upper apical part of first antennal joints, the apical part of third antennal joints pale reddish to obscure reddish; face in ♀ in front of antennae more dark brownish and not black; scutellum, sides of abdominal segments 2–5 in ♂ broadly and to a certain extent the hind margins towards midline on each side and the hind margins of the ventral segments in ♂ very broadly, or the entire venter, reddish or reddish brown; meso and metapleural regions often infused with reddish or brownish above the middle and hind coxae; the comparatively short pubescence above pelt-like and more or less very pale yellowish white or sericeous to yellowish sericeous, being more yellowish or even whitish sericeous in different lights, the thorax above with 3 narrow whitish sericeous bands and, in ♀, these separate 3 broadish deeper yellowish and more golden or orange bands, with the sides of thorax above wings and pleural regions more whitish sericeous, with a tuft of hair and bristles on posterior calli even more whitish; hair on head below, in front of front coxae, that just below wings on mesopleurae and above middle coxae white; hair on head very pale yellowish white, the bristles on ocellar tubercle and sides of frons in ♀ being dark brownish to blackish, more yellowish brown in ♂, with the bristles on first antennal joints yellowish white and the shorter ones on joint 2 black, with blackish bristles also intermixed on face; hair on abdomen above in ♂ very pale sericeous white to pale yellowish sericeous and even silvery in certain lights, the bristles on sides of segments 2 and 3 often dark and the rest of bristles whitish; hair on abdomen in ♀ more distinctly yellowish, only those on the sides, in

certain lights, whitish sericeous, with the transverse bristles yellowish to whitish; venter with the hair and transverse bristles on segments 1–3 and along extreme sides of the rest whitish sericeous in ♂, but with those on segment 4 to apex pale yellowish brown or ochreous, in the ♀ the ochreous patch is less extensive, the bristles here even darker and more blackish and with orange pubescence surrounding the genital aperture; wings with the base and anterior two-thirds, extending obliquely from end of first longitudinal vein across discal cross vein and base of fourth posterior cell to extreme base of axillary cell, brownish or reddish brown, the infuscation along third, fourth longitudinal veins and along vein between second basal and anal cells being more distinct, with the basal half of first posterior cell and the second basal cell not being very dark, with distinct and darker infuscations on discal cross vein, basal cross vein of fourth posterior cell and just in front of discal vein, with the rest of wing more hyaline but tinged slightly greyish hyaline, with the basal comb black in front and pale yellowish white behind, with the veins dark brownish red, more reddish towards base and along first longitudinal vein, with the squamae subopaquely brownish, having almost white fringes; halteres pale brownish to reddish, with yellowish to yellowish white knobs; legs very dark brownish black to black, the lower surfaces of the femora and basal halves of the tibiae often showing through the dark scaling, more reddish or dark reddish brown, with the tarsi black and the apical halves of the claws black, the pulvilli being yellowish. *Head* with the interocular space in ♂ as broad as ocellar tubercle, quite 3 times as broad as tubercle in ♀ or about 2 times as broad as in ♂; frons with the central furrow feeble but more evident basally in ♂ and, in ♀, only indicated in transverse furrow; antennae with joint 1 slightly shorter in ♂, about 2 times as long as 2 in ♀ or even slightly more, distinctly less in ♂, with joint 3 often slightly yellow scaled above, longer than 1 and 2 combined, relatively more slender in ♂, constricted at base, broad in basal half and broader in ♀, broadest before middle, more gradually tapering apically in ♂, the apical slender part being longer in ♂, with the upper part in ♀, from about the middle, more rapidly sloping to apex than in ♂, with the terminal style slender, rod-like and straight; proboscis about 9–10 mm. long. *Thorax* with the pubescence short and dense and, in ♂, having a more "shorn-off" appearance; wings comparatively longer and more powerful in ♀. *Abdomen* with the hair and bristles longer in ♀, more dense and pelt-like in ♂, with the bristles very prominent and longer laterally in ♀; dorsal interruption of

bristles very narrow in both sexes and the dorsal ones in ♂ very short and inconspicuous. *Legs* with 1–3, or without any, small spines below on front femora; middle ones with 3–5 spines below in apical half; hind ones with a row of very numerous spines below, those near base more or less alternating as long and short ones; claws sharply curved downwards apically. *Hypopygium* of ♂ (text-fig. 94) with the inner apical projecting process provided with a dense mane of spine-like bristles; beaked apical joints sunk in between apical



Text-fig. 94.—Side view and half of ventral view of hypopygium of ♂ *Systoechus bechuanus* Hesse.

parts of basal part, narrow, elongate, not depressed above and with the apex curved inwards and downwards; aedeagus with the apex only slightly curved upwards; lateral rami produced in front on each side of aedeagus into a clavate process; basal strut broad and shaped as shown in figure (in lateral view, in the figure, the aedeagus and middle parts are shown a little separated from the basal part).

Holotype-♂ in the Transvaal Museum, allotype-♀ in the South African Museum.

Length of body: about 14–16 mm.

Length of wing: about 16–17 mm.

Locality.—Bechuanaland: Kaotwe (V.-L. Kal. Exp., 8–12/4/30) (Types); Gemsbok Pan (V.-L. Kal. Exp., 23–4–5/5/30).

This species is one of the largest representatives of *Systoechus* and is also among the largest members of Ethiopian *Bombyliidae*. According to Bezzi's keys and descriptions in Trans. Ent. Soc. Lond.,

pp. 605 and 608, 1911, and on pp. 63 and 64 in The Bombyliidae of the Ethiopian Region, this species is very near *robustus* Bezz., if not merely a variety of it. As the description of this latter species is, however, vague and contradictory, I am unable to decide on this point without seeing the types or labelled specimens. In the original description, Bezzi states that bristles are wanting on the abdomen, and after emphasizing this character on p. 64 in The Bombyliidae of The Ethiopian Region, he, however, contradicts himself again lower down by stating that there are yellow bristles on the sides of the abdomen in the ♂. From his description, however, this species seems to differ in having the second basal cell of wing and basal half of first posterior cell not so darkly infuscated (*see* fig. 5, p. 64, loc. cit.), by having black or dark legs and distinct transverse rows of bristles on abdomen of both sexes, etc. Superficially it also resembles *scabrirostris* Bezz., from which it differs in having the eyes more narrowly separated in the ♂, no coarse spinules and transverse wrinkles on labium of proboscis, no orange pubescence on propleurae, blackish legs and black spines, more sickle-shaped claws and much longer pulvilli, etc.

S. goliath Bezz.

(P. 73, Broteria (Ser. Zool.), vol. xx, Fasc. II, 1922.)

Like *bechuanus*, *fuligineus* and *scabrirostris*, this is a very large and bulky species. The species was described by Bezzi from a ♀-specimen collected by the late Dr. Brauns at Willowmore. In the collections before me there are both ♂♂ and ♀♀ from Willowmore and the Albany District, and as the ♂ has not yet been described a supplementary description of the species is appended.

Body black, with the face yellowish brown, the scutellum ferruginous reddish, with the sides of the abdomen in ♂♂ reddish, sometimes rather broadly so, with the abdomen above in ♀♀ entirely black, with the hind margins of the sternites narrowly or obscurely reddish, with the sutural parts of pleurae sometimes tending to be yellowish brownish; legs entirely very dark blackish brown or black, with all the spines and spicules black; pubescence shortish, that on thorax above, especially in ♂♂, with a shorn-off appearance, that on abdomen, even in ♀♀, not long, shaggy or bushy, that on frons, antennae, face and genae short, rather sparse on sides of face, predominantly gleaming velvety, brassy to golden yellowish on body above and below, tending to be deeper golden in ♀♀, that on abdomen in ♂♂, especially towards

apex, slightly gleaming more pale golden or even brassy in certain lights, that on body below more pale sericeous yellowish to slightly whitish on head below, with a more whitish gleaming patch above front coxae, more pale gleaming sericeous yellowish to slightly whitish pubescence on middle part of pleurae from below base of wing down to middle coxae and with more whitish gleaming pubescence on each side basally on venter, that towards apex of venter, especially in ♂♂, more fulvous brownish or brownish golden, that on each side in front of wings appearing more ochreous yellowish or deeper golden in certain lights, that on disc of thorax, especially in ♀♀, in form of 3 broadish indistinct longitudinal bands of darker and more fulvous brownish pubescence separated by bands which gleam paler and more pale golden or sericeous yellowish, with the shortish bristly hairs on ocellar tubercle, the bristly elements on sides of frons, those on antennal joint 1 above and intermixed on face in front and along front margins of genae black in both sexes, with the bristles on thorax, scutellum and abdomen above pale yellowish to golden yellowish in both sexes, gleaming sericeous yellowish in certain lights, the bristly elements towards apex of venter in ♂♂ darker and more reddish brown and those on sides of last sternite in ♀♀ also darker and more brownish to blackish brown, with the bristly elements on coxae gleaming golden yellowish like rest of pubescence and bristles, with the scaling on legs more greyish yellowish on lower surfaces of femora, even slightly brownish yellowish, greyish whitish on outer surfaces of tibiae; wings greyish hyaline, with the costal part and basal part, from end of costal cell across to basal half of first posterior cell and including the basal cells but not discoidal cell, distinctly tinged brownish, the base and costal cell more subopaquely so and with a slightly more yellowish tint in certain lights, this basal infuscation not well marked off from greyish hyaline part of rest of wings, with the veins dark brownish, more reddish brown towards base, with the basal comb large and black, but covered with yellowish scaling above, with the squamae opaquely brownish and fringed with yellowish hair which gleams sericeous yellowish in certain lights or even slightly paler in others, the bases of the hairs sometimes with fulvous gleams in certain lights; halteres brownish and with pale brownish to brownish knobs in both sexes. *Head* with the eyes in ♂♂ separated above by a space only a little broader than ocellar tubercle, about 3 times as broad as tubercle on vertex in ♀♀; frons in ♂♂ with the central furrow more distinct in basal half; antennae with joint 1 about $2\frac{1}{2}$–3 times as long as 2 (about 3 times in ♀♀), with joint 2 longer than

broad, with 3 in ♂♂ quite 1½ times as long as 1 and 2 combined, slightly shorter in ♀♀, tending to be club-shaped, broadest in basal half or third, attenuated apically but more rapidly along upper edge, ending apically in an upwardly directed slender style and without a separately visible basal joint; face somewhat conical and spout-like, quite as long as combined length of antennal joints 1 and 2; proboscis rather stout and conspicuous, long, about 11–13½ mm. long, rugulose below and more transversely so near base, not distinctly spinulate; palps clavate in apical half, the apical part narrowed again, and without separately visible joints. *Legs* strongly developed as in the preceding large and bulky forms, without any hairs on femora below; front femora with about 2–4 spines in front and 2 behind; middle femora with about 4–6 spines in front and 2–5 behind; hind femora with about 11–17 spines below from near base to apex, small and long ones sometimes alternating; claws rapidly curved downwards just beyond middle and the pulvilli extending beyond middle in both sexes; front tarsal joints in ♀♀ hairy and slightly thicker than middle ones. *Hypopygium* of ♂ resembles that of *bechuanus* (cf. text-fig. 94), with the lateral process on each side of aedeagus, however, relatively more slender, slightly longer and with apparently fewer bristly hairs on apical part above of basal parts.

In the Albany, Transvaal and South African Museums.

Length of body: about 15½–17 mm.

Length of wing: about 16½–18½ mm.

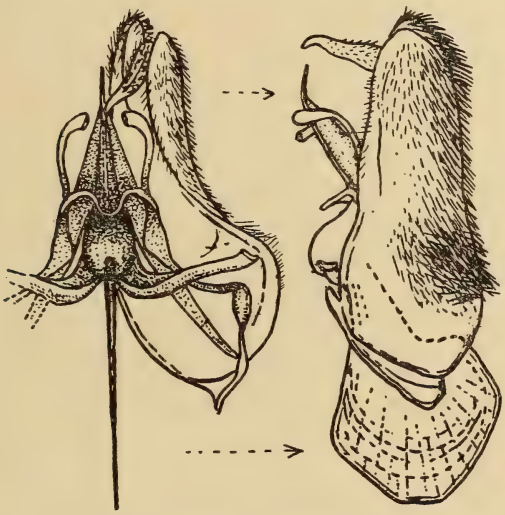
Locality.—Little Karoo and South-Eastern Karoo.

8 ♂♂ 16 ♀♀ *S. kalaharicus* Hesse.

(P. 165, Ann. Trans. Mus., vol. xvii, 1936.)

Body black; extreme apices of third antennal joints often paler or pallid; an indistinct spot on ocellar tubercle, face in front of antennae and often infusions on the pleurae, obscure red or reddish; scutellum and, in ♂, the hind margins of abdominal segments above, interrupted on segments 2–4 or 5, the sides of segments 2–5 broadly, almost the entire venter and genital segment reddish to brownish red; legs yellowish brown, the apical halves of hind tibiae and tarsi and last 3 or 4 joints of the other tarsi darkened, dark brownish to black and the apical halves of claws also black; general pubescence above pelt-like, velvety yellowish brown, that on thorax in ♂ paler, that on abdomen above in ♂ with a paler, pale yellowish to whitish sericeous sheen in certain lights, that on sides in basal half of abdomen

deep reddish brown or rufous; hair on frons and face yellowish, the bristles in ♂ yellowish but more brownish on face in front and more brownish or blackish brown in ♀; macrochaetae in front of wings, bristles on scutellum and across hind margins of abdomen, especially laterally on segments 1–4, reddish brown to dark brownish, those discally in both sexes being slightly paler; pubescence on thorax above in ♀ with a tendency to show 3 broadish brownish bands; sides of thorax in front of wings with the bristles and hairs yellowish



Text-fig. 95.—Half of ventral view and side view of hypopygium of ♂ *Systoechus kalaharicus* Hesse.

brown in ♂ and deeper brownish in ♀; hair on head below and above front and middle coxae whitish or pale yellowish white; tuft of hair on posterior calli, metapleural tuft and fringe of long ones on squamae pale yellowish white, almost sericeous white in certain lights; venter with yellowish brown hair medially near base, with almost pure white sericeous pubescence laterally in basal half, the apical half more ochreous or velvety brown and the bristles in ♀ brown to very dark brownish black towards apex; wings infuscated, darker coffee brown or reddish brown in anterior half, extending more or less from near apex of marginal cell obliquely across basal halves of first submarginal and first posterior cells, base of discoidal cell, basal cross vein of fourth posterior cell to base of anal cell and alula, this infuscation, however, merges imperceptibly, more so in ♀, into the more smoky or slightly mauvishly tinged posterior translucent half, with

the infuscations along the main longitudinal veins in anterior darker part more distinct, with the basal comb black and with pale yellowish scaling behind it, with the veins dark brownish and the first longitudinal one and basal parts of the others more reddish, with the squamae opaquely brownish; halteres brownish, with paler and often yellowish white knobs. *Head* with the interocular space in ♂ as broad as ocellar tubercle, a little more than 2 times as broad in ♀, about 3, or very slightly more, times as broad as tubercle; antennae with joint 1 about 2 times as long as 2, with joint 3 longer than 1 and 2 combined, about 1½ times, or often less, as long, often slightly pubescent above, not or only very slightly constricted at base, more or less equally thickened in basal half, slightly more so in ♀ and, in some specimens, broadest near base, the apical half more slender in ♀ and in both sexes slightly directed upwards, with the style small, short and slender; proboscis straight, about 5–6 mm. long, with the minute spinules below not visible. *Abdomen* with the hair and bristles longer and slightly less dense in ♀ and bristles on venter also stouter and longer in ♀. *Legs* without any long hairs towards base of femora, but with pale yellowish sericeous scaling; front femora unarmed or rarely with 1 or 2 small spines below; middle ones with 3–4 spines in front and 1–3 behind in ♂ and 3–6 and 1–3 respectively in ♀; hind ones with about 10–16, longer and shorter, spines below on the outside and about 1–4 on the inner side. *Hypopygium* of ♂ (text-fig. 95) with the process on each side of aedeagus slender and slightly clavate apically; basal strut broad, racket-shaped and distinctly projecting posteriorly.

Holotype-♂ in the Transvaal Museum, allotype-♀ in the South African Museum.

Length of body: about 8–13 mm.

Length of wing: about 10–13 mm.

Locality.—Bechuanaland: Damara Pan (V.-L. Kal. Exp., 15–21/4/30) (Types); Kaotwe (V.-L. Kal. Exp., 8–12/4/30). S. Rhodesia: Matetsi (Stevenson, Apr. 1934).

This species is easily recognised by its yellowish brown or velvety brown pubescence and infuscated wings. It is nearest to *namaquensis* n. sp. described below.

1 ♀ *S. namaquensis* n. sp.

(Syn. = *fuligineus* Bezz. nec Lw.)

As stated under *fuligineus* Lw., this species was referred to and partly described by Bezzi (p. 45, Ann. S. Afr. Mus., vol. xviii) as the

♀ of Loew's species. As it is obviously not *fuligineus* but an undescribed species very closely related to *kalaharicus*, it is described as *namaquensis* n. sp. and, as Bezzi has already given a short description (loc. cit.), a comparison with *kalaharicus* will suffice.

Body black, but, apart from the scutellum, the sides of abdominal segments 2–5 are obscurely tinted reddish and pleural parts brownish; legs dark chocolate brown; general pubescence darker and more chocolate brown, with a velvety sheen in certain lights, the hair on occiput being paler, more yellowish and that at apex of abdomen not paler, the bristles on thorax and all the bristles on abdomen much darker, dark chocolate brown to blackish, the metapleural tuft and fringe of squamae pale brownish, but much darker and not pale yellowish white; wings comparatively narrower, with the darker anterior coffee brown infuscation less extensive, less dark and less demarcated from posterior part, the marginal cell also being less infuscated in apical half. *Head* with joint 1 of the antennae comparatively longer, joint 2 comparatively shorter, with joint 3 slightly less thickened in basal half, and the apical part also thicker and ending apically in a distinct basal terminal element. *Legs* with 1 spine below at about middle of front femora, about 4–5 on middle femora and about 10–13 spines below on hind ones.

Type in South African Museum.

Length of body : about 8½ mm.

Length of wing: about 9 mm.

Locality.—Namaqualand: Spektakel (Lightfoot, Oct. 1890).

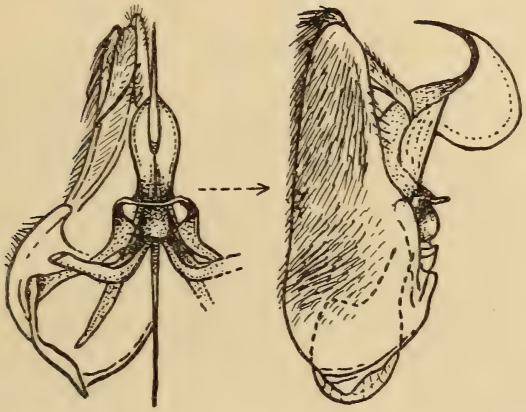
The small ♀-specimen from O'okiep, mentioned by Bezzi (p. 46, loc. cit.), is not represented in the collection and is probably not the same as this species.

5 ♂♂ 6 ♀♀ *S. aberrans* n. sp.

Body black, with the face, genae and head below yellowish or pallid, the scutellum ferruginous reddish, with the sides of abdomen in ♂♂ reddish, sometimes broadly so, the extreme sides in some ♀♀ sometimes also tending to be obscurely reddish, with a longitudinal band along pleurae, sometimes obscure, tending to be yellowish or yellowish brownish, with the hind margins of sternites, especially in ♂♂, and the last sternite in some ♀♀ also reddish or yellowish reddish, with a tendency for first antennal joints to be obscure reddish brownish in some ♀♀; legs predominantly yellowish in ♀♀, with the femora in ♂♂, especially front and middle ones, distinctly darkened or even

blackened and even in some ♀♀ the upper faces of the femora may be more brownish, with the apices of the hind tibiae, the hind tarsi and to a certain extent the other tarsi also darkened and more blackish brown, with the spines and spicules black and apices of claws black; pubescence shortish, that on thorax above, especially in ♂♂, short and with a cropped-off appearance, that on abdomen, even in ♀♀, not bushy or shaggy, that on body above in ♂♂ gleaming predominantly greyish to sericeous whitish, that on abdomen especially almost silvery whitish, appearing even whiter at apex, that in front of wings slightly more fulvous, that towards apex of venter gleaming fulvous or ochreous brownish, that on body below in ♂♂ also predominantly silvery whitish, that on body above in ♀♀ gleaming more sericeous yellowish to golden yellowish, that on disc of thorax sometimes with deep fulvous golden gleams and that towards apex of abdomen above sometimes gleaming more whitish in certain lights, that on head below, on pleurae and on each side of venter basally in ♀♀ also gleaming sericeous to silvery whitish, that towards apical part of venter more fulvous golden and that in front of wings as in ♂♂ also deeper golden or more ochreous yellowish, the pubescence on face somewhat sparse, that on face sericeous whitish to sericeous yellowish in both sexes, with the bristly elements on face without any or with a few darkish or more yellowish ones, with the bristly hairs on ocellar tubercle and sides of frons in both sexes dark blackish brown to blackish, with all the bristly elements on thorax, scutellum and abdomen in ♂♂ entirely pale or gleaming whitish, those on thorax, scutellum and transversely across abdominal tergites in ♀♀ distinctly darker, more reddish brownish, brownish to dark brownish, becoming even more blackish brown towards apex of abdomen, the bristly elements on venter in ♀♀ also brownish to blackish brown especially towards apical part, with the bristly elements on coxae in ♀♀ sometimes slightly tinted yellowish sericeous, with the scaling on legs more yellowish in ♀♀; wings tinged faintly greyish or feebly reddish or brownish in certain lights, with the base, costal cell and from there across to end of second basal cell and including basal parts of anal and axillary cells and the alula darker and distinctly brownish or mauvish brownish, this darker part not well marked off from more greyish hyaline part, with the veins brownish or dark reddish brown, becoming paler towards base and more yellowish brown, with the basal comb dark blackish brown to black, with the squamae subopaquely or opaquely yellowish brownish or yellowish and fringed with sericeous whitish hair which in ♀♀ sometimes gleam more creamy to pale yellowish in certain lights;

halteres yellowish, with very pale yellowish knobs. *Head* with the eyes in ♂♂ separated above by a space as broad as ocellar tubercle, about 3, or a little more, times as broad as tubercle in ♀♀; frons with the central furrow distinct in ♂♂ and even evident in ♀♀; antennae with joint 1 only about 2½ times as long as 2, with joint 3 only a little longer than 1 and 2 combined, sometimes subequal to their combined length, gradually narrowed apically from a broadened base, ending apically in a distinct basal terminal element which bears a short



Text-fig. 96.—Half of ventral view and side view of hypopygium of ♂ *Systoechus aberrans* n. sp.

style; proboscis about 4–5 mm. long. *Legs* with shortish hair on femora below basally, with a few apical spines above on front and middle femora, without any distinct spines below on front femora; middle ones with about 3–6 spines in front and sometimes 2–3 behind; hind femora with about 8–11 spines below; claws rapidly curved down apically and with the pulvilli extending beyond their middle in both sexes; front tarsal joints in ♀♀ scarcely different from middle ones. *Hypopygium* of ♂ (text-fig. 96) with the beaked apical joints narrowish, compressed, their apices bent downwards and slightly outwards; aedeagus with its apical part curved upwards and provided below with a flattened, ventral keel (as shown in side view in figure).

Holotype in the Transvaal Museum, allotype in the South African Museum.

Length of body: about 7–8½ mm.

Length of wing: about 7–8 mm.

Locality.—South-Eastern Karoo: Albany Distr.; Grahamstown,

Resolution (Walton, 20/3/28 and 19/3/28) (Types); Resolution (Jan.–Apr. 1928). Little Karoo: Willowmore (Brauns, Apr. 1917).

This species is peculiar in that the ♂♂ are more pale-haired or more sericeous whitish than the ♀♀ where the presence of dark or blackish brown transverse bristles on the abdomen gives them an even darker and more brownish golden appearance. Superficially the ♀♀ resemble ♀♀ of *nigripes*, but differ in having shorter and less shaggy pubescence, much shorter and sparser pubescence on face, less tumidly prominent genae, much shorter pubescence and bristles on abdomen, a reddish scutellum, etc.

1 ♀ *S. badius* n. sp.

A solitary unlabelled ♀-specimen from the late Dr. Brauns' collection and thus most likely from Willowmore, is so near ♀ of *aberrans* n. sp. that it may almost be considered as a variety of it. It differs, however, in having darker, more coffee brown or velvety brown pubescence above; hair on disc of thorax being brown, much less golden, that on occiput, in certain lights, distinctly more whitish and not yellowish; bristly hair on face black and that on antennal joint 1 below also black, that on the sides of thorax in front of wings darker and more brownish, not fulvous; general pubescence on abdomen above also comparatively darker; bristles in front of wings almost black; white pubescence on pleural regions less extensive, the metapleural tuft pale brownish yellow, not whitish sericeous, with the hairs and bristles on coxae velvety brown; legs entirely dark blackish brown, with duller and darker hair-like scaling; wings tinged much darker brownish or smoky and also more uniformly, the base also darker than in *aberrans*; proboscis slightly longer and the minute spinules below on labium much more distinct and visible; third antennal joints comparatively and distinctly more slender in apical third and also slightly longer. From *namaquensis* this species is separated by the characters given in the key.

Type in the Transvaal Museum.

Length of body: 7 mm.

Length of wing: 8 mm.

Locality.—? Little Karoo.

S. albidus Lw.

(P. 190, Dipt. Faun. Südafr., i, 1860.)

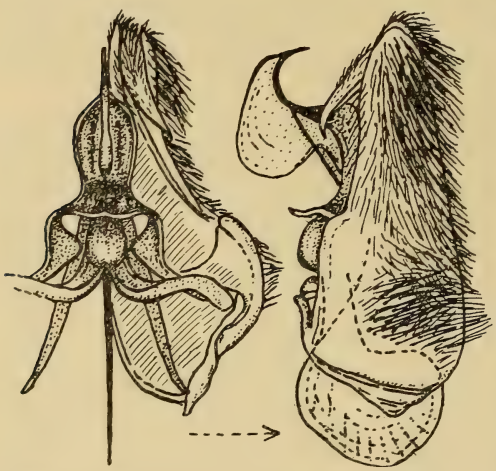
As in the case of many South African species described by Loew, Bezzi has incorrectly identified this species. The series of specimens, from

the Transvaal, O.F.S. and Eastern Karoo, before me, and which I take to represent the true *albidus* agree entirely with Loew's description as far as the ♂♂ are concerned. In view of the fact that species of *Systoechus* are often much more localised in their distribution than in other genera, the correct determination from a description would be rendered more probable by a knowledge of the type locality. Loew's ♂-type was supposed to have come from a vague region known as "Caffraria" (coll. Wahlberg), which may not refer to the present region so named in the Eastern Province, such as Kingwilliam's Town, Alice, etc., but which, judging from *Coleoptera* collected by Wahlberg, most likely applies to the Orange Free State, Transvaal and Western parts of Natal.

Certain additions to Loew's description are that, in addition to the reddish scutellum, the sides of the abdomen in the ♂♂, especially on segments 2 and 3, are broadly reddish; hind margins of ventral segments narrowly pallid; head with the interocular space in ♂♂ as broad as ocellar tubercle, with joints 1 and 2 of the antennae combined shorter than 3, with joint 3 broadened towards base and without any distinct apical slender part, with the spinules on proboscis below very distinct towards base; abdomen with some distinct, stout, black bristles, not longer than the hair, laterally in transverse rows on segments 3 and 4 and sometimes on 5 also, the rest of the bristles whitish, with the dorsal interruption along midline comparatively narrow. *Wings* very characteristically infuscated brownish or coffee brownish at base, in costal cell and from there obliquely across discal cross vein, apical cross vein of second basal cell, over basal half of anal cell to extreme base of axillary cell and largely also the alula, with the costal cell and base being also slightly more subopaquely yellowish, with the rest of wing almost hyaline, imperceptibly tinged greyish or feebly brownish, with the veins brown, the squamae opaquely pale yellowish brown to yellowish and the fringe creamy white. *Legs* with a few minute apical spines above on front and middle femora; front ones with about 3 or 4 small spines in apical half in front and 2 or 3 behind; middle ones with about 5–9 smaller and larger spines in front and 3–5 behind; hind ones with about 11–15 on the outer side below and often numerous minute ones on the inner side. *Hypopygium* (text-fig. 97) with the basal parts provided with longish hairs laterally and dorsally in neck region, with hairs also on ventral margin of inner apical part in neck region; beaked apical joints elongate, not depressed above, directed slightly outwards and downwards apically; aedeagus falcate, with a well-developed keel below, the ventral edge of which

is slightly broadened; lateral rami fused anteriorly and forming a raised arch or girdle across vase of aedeagus.

The undescribed ♀♀ differ from the ♂♂ in having slightly longer hair on disc of thorax, which has a less "shorn-off" appearance than in ♂♂, the colour of pubescence on occiput and thorax above also often distinctly less whitish and more yellowish, more brownish when viewed from above, that on abdomen above distinctly less pale and more yellowish in some ♀♀ and also less dense and more transversely arranged, with the rows of transverse bristles on hind margins of abdominal segments stouter, those laterally on segments 2 to apex and above also on 5 to apex ranging in colour from reddish brown, brownish to black, most of them with paler tips and those laterally on last few segments being always more or less black; head with the face and genae and greater part of head below yellowish or pallid or with some yellowish, with the pubescence pale creamy yellowish on frons and sides of face, the bristly hairs on ocellar tubercle, frons, face and genae black, those on face being less dense and numerous than in ♂♂, with the bristles on first antennal joints below yellowish as in ♂♂; interocular space slightly more than 3 times as broad as tubercle; joint 3 of the antennae slightly broader basally than in ♂♂ and the apical slender part less evident and also shorter; wings as in ♂♂; legs with the femora not entirely black, pale brownish yellow, with often only the front face darkened, with the tibiae also paler than in ♂♂, with the spines on femora stouter than in ♂♂ and fewer 8–13, but larger, ones on hind femora below and about the same number on the rest of the femora.



Text-fig. 97.—Half of ventral view and side view of hypopygium of ♂ *Systoechus albidus* Lw.

Length of body: about 9–11 mm.

Length of wing: about 10–11 mm.

Locality.—Transvaal, O.F.S., S. Rhodesia and Eastern Cape

Province. (In the Imperial Institute, Deutsches Entomologisches Institut, Union Department of Agriculture, Albany, Transvaal and South African Museums.)

The ♀-specimen in the Albany Museum from "Fort Brown (Walton)" differs from the Transvaal specimens in being slightly smaller, in having the infuscation on wing slightly more extensive in basal half of marginal cell and also in having slightly paler and more whitish pubescence on abdomen above.

1 ♀ *S. albidus* Lw. var. *auripilus* n.

In the absence of a ♂ and in the entire agreement of specific characters of this solitary ♀-specimen with those of the typical ♀-*albidus*, I can only consider this specimen as a distinct variety of *albidus*.

It differs from the ♀ of *albidus* in that the general pubescence of body above is not pale creamy whitish or yellowish sericeous but distinctly golden yellow, that on occiput and anterior part of thorax even more orange fulvous, that on sides in front of wings even slightly deeper orange fulvous and that on abdomen above is distinctly more uniformly golden, that on pectoral regions and coxae not whitish or creamy sericeous, but pale golden yellow, only that on the mesopleural and basal parts of venter as in *albidus*, being more whitish, with the sides of abdomen also with dark brownish transverse bristles. *Head* with the antennae, especially joints 1 and 2, more dark reddish brown and the bristles on frons and sides of face darker reddish brown; proboscis about 6 mm. long. *Wings* infuscated as in *albidus*, but basal infuscation slightly less dark brown. *Legs* with the tarsi more slender, but otherwise as in *albidus*.

Type in the Transvaal Museum.

Length of body: about 8½ mm.

Length of wing: about 9 mm.

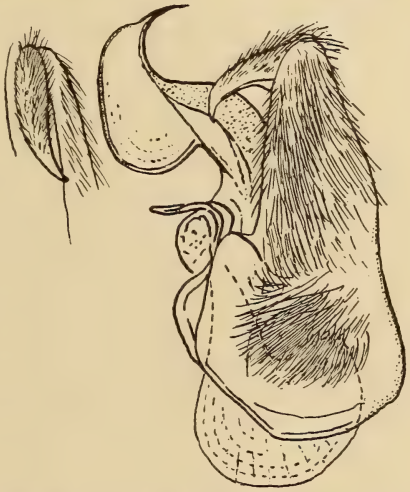
Locality.—Transvaal: Pretoria Distr.; Zusterstroom (Janse, 17/12/04).

2 ♂♂ 4 ♀♀ *S. polioleucus* n. sp.

Black; face and to a certain extent head below pallid or yellowish; scutellum ferruginous red, its base black; sides of abdomen in ♂♂ broadly reddish, especially segments 2–4; legs yellowish brown, with the femora in ♂♂ blackened and with their lower or front and posterior surfaces in the ♀♀ also darkened, with the inner surfaces of

the tibiae, especially the front ones, and the apical parts of the others, especially hind ones, also darkened or with dark hair-like scaling, with the tarsi blackened; pubescence short, with a shorn-off appearance on thorax of ♂♂ especially, greyish to whitish from above, predominantly greyish, silvery whitish from side, that on thorax in front, especially in ♂♂, and that on abdomen in ♂♂ silvery white, appearing more greyish white in ♀♀ due to the dark transverse bristles, that on disc of thorax and occiput in ♀♀ more yellowish to subgolden yellowish brown, with the hair just in front of the transverse bristles in basal part of abdomen in some ♀♀ as well as those at base of first segment distinctly more pale ochreous brownish, with the hair on venter towards apex in both sexes distinctly pale gleaming golden or ochreous brownish, with the hair on head below, pleural parts and base of venter silvery white, with the depressed pubescence on head silvery whitish, slightly more yellowish towards base of frons, especially in ♀♀, with the bristly hairs on head above, on antennal joint 1 above and intermixed on face in front very dark blackish brown, those on face comparatively sparse, short, almost confined to anterior part and there with numerous pale or yellowish intermixed ones as well, with the numerous stout and fine bristles in front of wing-bases, on upper hind part of mesopleuron, on posterior calli, scutellum, transversely on all the abdominal segments above and in apical half of venter in ♀♀ yellowish brown, brownish to blackish brown, those on abdomen being usually darker and those on mesopleuron above paler, with the bristles in front of wings, thorax, scutellum and predominantly above on abdomen in ♂♂ and basally on venter in both sexes yellowish white or pale, those, however, on sides of segments 4 and 5 in ♂♂ also blackish brown or black and some on extreme sides of 2 and 3 often slightly darker tipped, with the coxal bristles in ♂♂ whitish, but with a few intermixed straw-coloured yellowish and even brownish ones in ♀♀ and also with 1 or 2 distinct, stout, blackish brown bristles, on each side of prosternum, in ♀♀; wings greyish hyaline, slightly more subopaque in ♂♂, with the base, costal cell and across from end of costal cell to apices of first and second basal cells and in bases of anal and axillary cells dark coffee brownish, with the basal comb black, with the veins blackish brown, but more reddish towards base and along first longitudinal vein, with the squamae opaquely yellowish and fringed silvery whitish, but with some fine intermixed blackish hairs in some ♀♀; halteres pale brownish, with yellowish to whitish knobs. *Head* with the interocular space in ♂♂, at narrowest part, as broad as front part of tubercle, a

little broader than 3 times as broad as tubercle in ♀♀; frons with the central furrow indicated in ♂♂ and more so basally; antennae with joint 1 short, about 3 times, or a little more, as long as joint 2, with 3 gradually narrowed from broadish base to apex, the apical third, or slightly more, being distinctly more slender, with some distinct short, bristly hairs above basally, especially in ♂♂, with the first terminal joint conical and distinct, the second not separately visible but ending in a pale style; face slightly conically prominent; proboscis long, stoutish, about 6½–8½ mm. long, with the spinules below visible and more so basally; palps brownish and with darkish hairs. *Legs* with spines apically above on front and middle femora, especially in ♀♀; front femora with about 2–3 spines in front and 2–3 behind; middle ones with about 5–7 in front and 3–4 behind; hind ones with about 10–16 spines below from near base to apex and with about 7–9 smaller ones on inner side below. *Hypopygium* of ♂ (text-fig. 98) belongs to the *albidus*-series in shape, with the basal parts very hairy above, especially in neck region and laterally beyond middle; aedeagus falcate, with a flattened, ventral, vertical, keel-like plate below, with a prominent arch-like projecting chitinous ridge (the rim chitinous as in *albidus*, etc.) at base of aedeagus and through which the middle part of the penis passes and which is formed by the lateral ramus from basal parts on each side.



Text-fig. 98.—Dorsal view of beaked joint and side view of hypopygium of ♂ *Systoechus polioleucus* n. sp.

Types in the British Museum, paratypes in the Transvaal and South African Museums.

Length of body: about 10–12 mm.

Length of wing: about 10–12½ mm.

Locality.—E. Cape Province: S.E. Karoo; Somerset East (Turner, Nov. 1930) (Types); Oudtshoorn (Brauns, 12/27); Albany Distr.; Grahamstown, Resolution (Walton, 23/3/28).

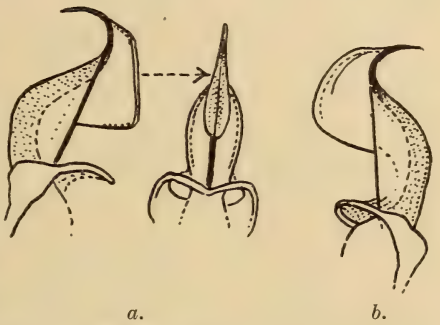
This species is easily recognised by its silvery white pubescence,

black bristles on abdomen of ♀♀ and the basally infuscated wings. It is obviously related to *albidus* Lw. and *neglectus* n. sp. from the former of which it differs in being silvery white haired. From *neglectus* it differs in having a pallid face, more numerous brownish black bristles in front of wings in ♀♀, less extensively dark legs, slightly longer first antennal joints, slightly longer proboscis, more reddish scutellum and not entirely black abdomen in ♂♂. There are probably slight differences in the colour of the pubescence, for the ♀-paratype from Grahamstown has slightly more yellowish hair on occiput, disc of thorax and transversely across abdomen in basal half.

4 ♂♂ 3 ♀♀ *S. neglectus* n. sp.

Body black; scutellum blackish or with obscure reddish to red on disc posteriorly, especially in some ♀♀; legs entirely black in ♂♂, the front and middle femora in part, the hind ones and the tibiae in ♀♀ brownish to dark brownish, with the tarsi and apical part of claws black, with the scaling on femora and tibiae greyish white, more yellowish on hind ones especially in ♀♀; pubescence, viewed from above, greyish in front and white posteriorly, viewed from the side, white becoming more distinctly white on abdomen above towards apex, that in front of wings in certain lights more greyish, the hair on head below, pectoral and pleural regions, metapleural tuft and venter white, even silvery white, the apical part of venter with pale yellowish brown or brownish fulvous hair, slightly paler and duller in ♀♀ and often also more developed laterally in ♀♀, the pubescence on frons in ♂♂ with a distinct brownish tint, becoming white on sides anteriorly and on sides of face, more yellowish on frons and white on face in ♀♀, the bristly hairs on ocellar tubercle, frons and first antennal joints brownish or reddish brown to dark brownish, with often some paler ones intermixed laterally in ♀♀ and also more whitish bristles on antennae below in ♀♀, that on face laterally in front and on genae in ♂♂ predominantly dark brownish black to black, with more white ones intermixed laterally and on face and genae in ♀♀, with the 3 or 4 strongly developed macrochaetae in front of wings dark brownish to black, some transverse bristles across base of thorax, those on posterior calli, some scutellar ones and the transverse ones on abdomen on segments 1–7 in ♀♀ brownish black to black, with the bristles on posterior calli, scutellum and transversely on abdomen in ♂♂ mostly whitish, but with often some intermixed yellowish to brownish black ones laterally on segments 4 and 5, with the ventral bristles towards

apex in ♀♀ blackish, brownish in ♂♂; wings with the basal part infuscated dark brownish or coffee-brown, extending from base and costal cell obliquely across basal half of marginal cell, first submarginal cell, discal cross vein, across extreme base of discoidal cell, apical cross vein of second basal cell to basal halves of anal and axillary cells and the alula, with the rest of wing almost hyaline, only very feebly tinged cinereous or brownish, with the basal comb black and with whitish scaling behind it, with the veins dark brownish or reddish brown, the main ones basally being more distinctly reddish brown, the squamae opaquely pale yellowish white and white fringed; halteres yellowish, with very pale yellowish white knobs. *Head* with the interocular space in ♂♂ posteriorly as broad as ocellar tubercle, at narrowest part about as broad as or only slightly narrower than front part of tubercle, about 3, or a little more, times as broad as tubercle in ♀♀; frons with the central furrow deep and distinct posteriorly only in ♂♂; antennae with joint 1 relatively short, about 3 times as long as 2, with 3 about 1½ times as long as 1 and 2 combined, thickened basally, broadest at about basal third, then gradually narrowed to a little beyond middle, from there forming an apical slender and rod-like part, with the first terminal joint slightly narrower than apex of 3, conical and slightly shorter than the style; proboscis slender, about 5–6 mm. long. *Legs* with a few apical spines above on front and middle femora and without any long hairs basally in ♂♂; front femora with about 1–2 small spines in front and 1 or 2 behind; middle ones with 3–5 spines in front and 2–3 behind; hind ones with about 9–12 spines below, of which some are very small and about 6–9 often minute ones on inner side below. *Hypopygium* of ♂ like that of *aberrans* and *albidus* (cf. text-figs. 96 and 97) with the basal parts as hirsute dorsally as in *albidus*, with the ventral keel to aedeagus (text-fig. 99, *a*) often more or less flattened below (probably due to collapsible nature of the broadened ventral part); beaked apical joints shorter



Text-fig. 99.—(*a*) Side and ventral views of aedeagus of ♂ *Systoechus neglectus* n. sp. (*b*) Side view of aedeagus of ♂ *S. tumidifrons* Bezz.

than in *albidus*, more like that of *aberrans* ; basal strut like that of *albidus*.

Holotype in the Transvaal Museum, allotype in the South African Museum.

Length of body: about 8–10 mm.

Length of wing: about 8–10 mm.

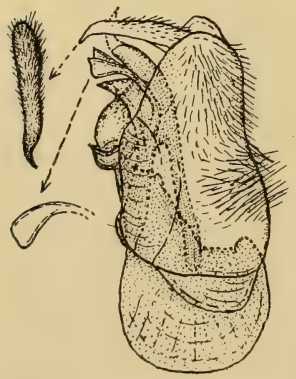
Locality.—Transvaal: Pretoria; Groenvlei (1/1/07) (Holotype); Pretoria (Impey, 9/12/15) (Allotype); (Capt. Paget, 24/11/11): Waterberg Distr. (v. Jutrzencka, 1898–99). Zululand: Mfongosi (Jones, Dec. 1914). S. Rhodesia: Bulawayo (Stevenson, 24/12/24).

This species is easily recognised by its white pubescence and infuscated wings, black legs in the ♂♂, etc. Superficially it may be confused with *albidus* Lw., which species is, however, distinctly less white, with a yellowish face, yellowish or whitish and not black macrochaetae in front of wings, comparatively broader interocular space in ♂♂, etc.

S. spinithorax Bezz.

(P. 44, Ann. S. Afr. Mus., vol. xviii, 1921.)

To Bezzi's description the following may be added:—Integument of face, head below, pleural regions, coxae and trochanters dark brownish; antennae with joints 1 and 2 also dark brownish and not black; abdomen is not entirely black, but broadly pale yellowish red on the sides, with the transverse rows of bristles across hind margins as long as hair and interrupted along midline above, the hairs transversely across hind margins before the black bristles whitish, those at base laterally on segment 1 almost silvery, the rest of the hair above pale yellowish brownish or pale fulvous in certain lights, that on venter almost silvery white; hair on thorax above short, viewed from side, almost silvery white in front of wings and above wings, with the "shorn-off" hairs on disc and scutellum distinctly pale brownish golden, with the short bristles, intermixed on front part of thorax, like those laterally in front of wings and



Text-fig. 100.—Side view of hypopygium, dorsal view of beaked apical joint, and view of aedeagal process of ♂ of *Systoechus spinithorax* Bezz.

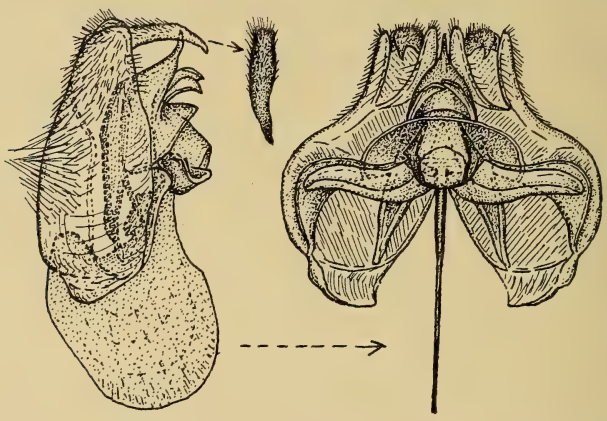
on mesopleuron above posteriorly, brownish golden; hair on metapleural tuft partly pale brownish; squamal fringe distinctly pale brownish. *Wings* with the costal cell, first basal cell subopaquely brownish. *Legs* with 1–3 black spines in front on middle femora and 6–8 spines below on hind ones. *Hypopygium* with the basal parts short and oval, the neck region short and broad; beaked apical joints comparatively long and slender, not depressed above, the apex slightly bent downwards and outwards; aedeagus with a lateral process on each side (text-fig. 100); basal strut as shown in text-fig. 100.

Locality.—Namaqualand: Klipfontein.

12 ♂♂ 15 ♀♀ *S. bombycinus* n. sp.

Body black; scutellum, excepting narrow black base and to a certain extent the hind border, the sides of abdomen in ♂♂, often broadly, pale reddish to yellowish red; venter in ♂♂ yellowish brown to brownish, with the hind margins yellowish in ♂♂ and darker brownish in ♀♀; legs with the basal halves or basal parts of front and middle femora in ♂♂ blackish brown to black, the hind femora and those of ♀♀ brownish yellow to even yellowish, with the front faces of front and middle ones in both sexes sometimes darkened by blackish scaling, with the tibiae yellowish to pale brownish, their front faces also sometimes darkened by dark scaling, with the apices of hind tibiae and the tarsi darkened or blackened, with the scaling on the lower and hinder faces of the legs whitish to very pale yellowish; pubescence short above and with a distinct shortish "shorn-off" appearance in ♂♂, especially on thorax above, having a distinct pelt-like appearance all over body, gleaming, velvet-like, pale sericeous yellowish, yellowish to bright golden yellow above, appearing more golden yellowish from side in certain lights, that on occiput short and together with that on thorax scarcely paler in ♂♂ than in ♀♀, becoming deeper yellowish in front of wings, that on abdomen more or less uniformly sericeous yellowish to gleaming golden, scarcely paler in ♂♂, but becoming paler apically in both sexes, that on sides of abdomen in certain lights with a distinct more ochreous tint and that towards apical part of venter also more ochreous yellowish, especially in ♂♂, that on pleural regions and basally on each side of venter paler than above, that along middle more distinctly gleaming whitish, that along upper parts of pleurae inclining to be more yellowish, that on coxae also less whitish and more pale sericeous yellowish and that in metapleural tuft more yellowish than whitish in

certain lights, that on head below distinctly whitish like that on each side basally on venter, with the pubescence on face in both sexes tending to be shortish and projecting tuft-like in front, the bristly hairs on ocellar tubercle, sides of frons, on first antennal joints, face in front and intermixed ones on sides of face and genae brownish to mauvish black, those on face in front in ♂♂ being slightly denser, more numerous and more apparently tuft-like in appearance, the depressed pubescence on frons in ♀♀, and to a certain extent on sides of face in



TEXT-FIG. 101.—Side view, ventral view of hypopygium, and dorsal view of beaked apical joint of hypopygium of ♂ *Systoechus bombycinus* n. sp.

both sexes, deeper yellowish and even slightly or distinctly fulvous in some ♀♀, that on sides of face and genae pale creamy yellowish to sericeous yellowish in both sexes, with the macrochaetal bristles in front of wings, post-alar bristles, scutellar bristles and the transverse bristles on abdomen above discally on tergites 2–3 in ♂♂ and 2–4 in ♀♀ yellowish white to yellowish, those laterally from tergite 2 to apex and discally also from tergite 4 or 5 to apex pale reddish yellow, reddish to reddish brown, those in some ♂♂ being slightly darker than in ♀♀, the bristles towards apical part of venter also more reddish or brownish yellow; wings tinged slightly mauvish or reddish mauve, becoming darker towards base, especially in ♂♂, occupying more or less the base, costal cell, first basal cell, second basal cell, base of marginal cell, bases of anal and axillary cells and the alula, with the costal cell, base and first basal cell distinctly more subopaquely brownish yellow, with the basal comb black, the scaling on it being pale yellowish white to whitish, with the veins brownish to reddish brown, becoming more yellowish towards base and more reddish

along first longitudinal vein, with the squamae opaquely pale yellowish brown and fringed with pale sericeous hairs which gleam more ochreous yellowish near their bases, with the wings tending to be more pointed apically in ♂♂; halteres yellowish to yellowish brown, with almost whitish knobs. *Head* with the eyes separated above in ♂♂, the space as broad as ocellar tubercle, quite, or a little more than, 3 times as broad as tubercle on vertex in ♀♀; frons with the central furrow in ♂♂ only indicated basally; face appearing conical due to tuft of blackish hairs in front; antennae with joint 1 shortish, about 2½–3 times as long as 2, with 3 not quite 1½ times as long as 1 and 2 combined, thickened in basal third, broadest at about basal third, from where it is more rapidly narrowed apically on the inner side, thus producing a slight hump on the inner side, in profile it also shows a slight humped appearance above near base or in basal half, the apical two-thirds or less being rod-like, ending apically in a small conical basal element, bearing a style; proboscis usually about 4–5 mm. long. *Legs* without any apical spines above on front and middle femora and the front ones usually unarmed below; middle femora with about 1–3 spines in front and 1–2 behind; hind ones with about 5–10 spines below and 3–5 in apical part on inner side; spicules in outer lower row on front and middle tibiae dark or black.

Types in the South African Museum, paratypes in the Durban and Transvaal Museums, the Union Agricultural Department and in the Imperial Institute.

Length of body: about 8–10 mm.

Length of wing: about 8–10 mm.

Locality.—Transvaal: Louis Trichardt (Lawrence, 1–2/28) (Types) (Ogilvie and Mackie, 4 and 10/32); Leydsdorp Rd. (van Son, 10/11/27); Barberton (van Dam, 10/22); Rooiplaat (Swierstra, 20–24/3/06); Pongola River (Marley, 10/29). O.F.S.: Bloemfontein (Munro). P.E. Africa: Beira (Ogilvie, 6/32). Zululand: Mfongosi (Jones, 3/14 and 1916). Natal: Ubani Valley; Umbumbo Distr. (Robertson). S. Rhodesia: Matopo Hills (Ogilvie, 30/10/31). Little Karoo: Willowmore (Brauns, 17/9/16). E. Cape Province: Uitenhage (Ogilvie, 10/31).

This species is very common and is also very variable in the colour of its pubescence, the intensity of the blackness of the femora in ♂♂ and the intensity of the reddish mauve or mauvish of the wings. There is probably a large number of varietal and even local forms throughout Southern Africa, Some forms at least appear to merit the rank of distinct varieties, thus:—

21 ♂♂ 28 ♀♀ *S. bombycinus* var. *pallidispinis* n.

These specimens differ from the typical forms in having the outer lower row of spicules or spines on front and middle tibiae, the spines on middle femora behind and sometimes the longish spine on inner side below at base of hind femora pallid or yellowish and not black; red or reddish on sides of abdomen in ♂♂ tending to be more extensive in some specimens; pubescence either similar in colour to typical forms or sometimes more brassy yellowish or even lemon yellowish; antennal joint 1 in some ♀♀ sometimes tending to be reddish. This form is very common and widely distributed throughout the Eastern and North-Eastern Karoo and even the O.F.S. Even this form is itself variable in the colour of its pubescence, size and minor details.

Types in the South African Museum, paratypes in the British and Transvaal Museums, in the Imperial Institute and in the Union Agricultural Dept.

Locality.—N. Karoo: Venterstad Distr. (Mus. Exp., 10/35) (Types); Burghersdorp and Steynsburg (Mus. Exp., 10/35); Aliwal North (Mus. Exp., 10/35). O.F.S.: Bloemfontein. E. Karoo: Graaff-Reinet. Little Karoo: Willowmore (Brauns). E. Cape Province: Dunbrody, Grahamstown, Somerset East, Queenstown and Uitenhage. Natal: Weenen (Thomasset).

1 ♂ 1 ♀ *S. bombycinus* var. *bedfordi* n.

This ♂ and ♀ apparently constitute still another and more or less distinct variety differing from the typical forms and preceding variety in having the sides of the abdomen in ♂ more broadly and extensively yellowish red and more so on tergites 3–6, with the venter in ♂ predominantly reddish; legs with the femora in ♂ very dark blackish brown or blackish to beyond the middle, with the front ones in ♀ also darkened in basal half, with the tibiae on the whole more darkened, especially in ♂; pubescence predominantly brassy yellowish, slightly duller than in the typical forms, that on body below slightly more whitish in certain lights, with the pubescence on frons in ♀ more ochreous brownish, with all the bristles on thorax and those transversely on abdomen in both sexes entirely yellowish, a few only on sides of tergites 4 and 5 in ♂ slightly deeper yellowish, with the pubescence towards apex of venter more distinctly ochreous brownish; wings with the faint reddish tinge and slightly more hyaline than in typical form; proboscis slightly longer, about 5½ mm. long; legs with

about 7–9 spines on hind femora below of which the basal one and apical 2 or 3 are the longest.



Text-fig. 102.—Side view of hypopygium of ♂ *Systoechus bombycinus* var. *bedfordi* n.

Types in the British Museum.

Length of body: about 9–10 mm.

Length of wing: about 8½–9 mm.

Locality.—Transvaal: Pretoria (Bedford, 23/9/14 and 17/10/12).

The *hypopygium* of the ♂ of *bombycinus* and its varieties (text-figs. 101 and 102) with the aedeagus as shown in the figures and with the process on each side of aedeagus slightly broadened apically as shown in text-figures.

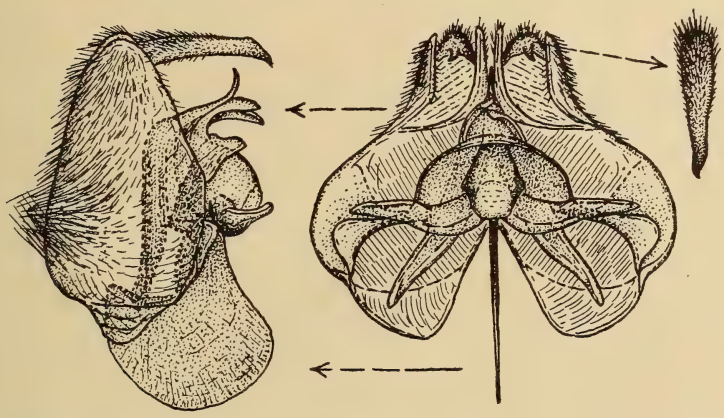
3 ♂♂ *S. monticolanus* n. sp.

These specimens so closely resemble *bombycinus* that they may almost be taken to represent still another distinct variety. As they, however, differ in certain essentials, it is desirable to refer them to a separate species.

Body black; greater part of scutellum, the sides of abdomen, broadly on tergites 2–6 and even to a certain extent the narrow hind margins of the apical tergites and the greater part of venter ferruginous reddish; face, genae and head below yellowish brown to brownish and not black as in *bombycinus*; legs with the femora and tibiae entirely yellowish or yellowish brown, though the front and middle tibiae may be darkened on anterior surfaces by blackish scaling, especially towards their apical parts, with the greater part of tarsi

darkened, with the spicules in outer lower row on front and middle tibiae and their lower apical spurs yellowish as in *bombycinus* var. *pallidispinis*; pubescence also relatively short, with a cropped-off appearance on thorax, appearing velvety or pelt-like as in *bombycinus* and its varieties, that on face also tuft or brush-like, gleaming bright to deep golden yellowish on body above, with brownish tints in certain lights, that in front of wings appearing more fulvous or orange golden in certain lights, that towards apex of abdomen scarcely paler than on rest of body above, that (depressed) on sides of frons, sides of face, on genae and erect ones on face in front very deep golden, the bristly hairs on ocellar tubercle, frons, a few intermixed ones on first antennal joints, the intermixed ones on sides of face and genae and denser intermixed ones on face in front very dark blackish brown, with, however, predominantly yellowish hairs on antennae and distinctly fewer blackish ones on face in front than in *bombycinus* and its varieties, the scale-like pubescence along hind margins of eyes on sides whitish, the pubescence on head below distinctly and contrastingly whitish, that on pleurae only slightly paler yellowish than above, that above front coxae and along middle of pleurae, extending up to below wings and also that basally on each side of venter also contrastingly whitish, that on pectus being again golden yellowish and even metapleural tuft is distinctly more yellowish than whitish, that on venter yellowish, becoming distinctly more brownish or ochreous brownish golden apically and that on sides of abdomen also more or deeper fulvous golden in certain lights, with the bristles on thorax, scutellum and discally above on abdomen golden yellowish, but those laterally on abdomen from tergite 3 to apex and even discally across apical segments reddish brown to dark reddish brown or even blackish brown; wings tinged mauvish as in *bombycinus*, the base, costal cell, basal part of marginal cell and first basal cell, however, more subopaquely yellowish brown, with the basal comb blackish, but with yellowish or golden scaling above, with the veins very dark, blackish brown, becoming almost black towards apical parts of wings and more dark brownish basally, with the squamae almost opaquely yellowish brown and fringed with pale yellowish hairs which gleam almost brownish fulvous in certain lights; halteres yellowish brown, with almost white knobs. *Head* with the eyes separated above by a space as broad as ocellar tubercle, as broad as in *bombycinus*; frons with the central furrow also more evident basally; antennae, in relation to body, distinctly longer than in *bombycinus* and its varieties, with joints 1, 2 and 3 thus apparently longer, though joint

1 may also be about 3, or a little more, times as long as 2, with 3 from side broadest near base, appearing humped above in basal half due to a bulge above, the apical part slender and rod-like, ending apically in a distinct and longish basal element, itself ending in a style, this basal element being distinctly longer and more conspicuous than in *bombycinus* and its varieties; proboscis projecting out straight, slender, markedly long and on the whole much longer than in *bombycinus* and its varieties, about 7–8 mm. long, also distinctly more



Text-fig. 103.—Side and ventral views of hypopygium of ♂ of *Systoechus monticolanus* n. sp.

visibly and more coarsely spinulated below than in *bombycinus*. *Legs* with 1 or 2 minute and feeble spines above on sides apically on front and middle femora; front ones without any or with 1 small spine in front and behind in apical half; middle ones with about 3 spines in front and 2 or 3 behind of which one or two may be yellowish; hind femora with about 7–9 spines from near base to apex on outer side below and 3 or 4 on inner side below, of which the apical one is long; claws slender and curved down apically as in *bombycinus*, and with the pulvilli also long. *Hypopygium* (text-fig. 103) with the beaked apical joints rather elongate and narrowish, but in other respects much like that of *bombycinus* (cf. text-fig. 101).

Type in the South African Museum.

Length of body: about 10–11½ mm.

Length of wing: about 9–10 mm.

Locality.—S. Western Cape Province: Fransch Hoek (Wood, Jan. 1937) (Type). Southern Cape Province: Tradouw Peak, Barrydale Side (Mus. Exp., Jan. 1935).

This species is easily recognised by its gleaming golden pubescence, markedly long projecting proboscis and mauvishly tinged wings. The species seems to occur on the higher slopes near the peaks of the Cape Mountains, a habitat which it shares with *montanus*, *affinis* and *subcontiguus*.

2 ♂♂ *S. tumidifrons* Bezz.

(P. 41, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species, of which the type is in the South African Museum, is easily recognised by its soft, creamy yellowish, somewhat shaggy pubescence above, which becomes paler and almost white posteriorly, and which, in certain lights, is pale brownish fulvous on thorax and occiput; by the yellowish or brownish fulvous hairs and reddish brown bristles on each side in front of wings, the whitish pectoral and pleural regions, slight ochreous tints laterally towards apex of abdomen and venter apically and by the stiffish, long, brush-like blackish hairs on face.

In addition to Bezzi's description, the following may be added:— Face, genae and head below yellowish; sides of abdomen above not black, as stated, but distinctly and often broadly reddish; venter also yellowish to reddish; scutellum too is not entirely black, but distinctly reddish discally in both the type and the other specimen; abdomen with the transverse rows of bristles laterally on segments 4 and 5 or 3–5 dark reddish brown to blackish brown, some of these bristles with paler tips; legs with apical spines above on front and middle femora; wings with the veins dark reddish brown, not black as stated, and towards base the main longitudinal veins are distinctly deep reddish brown, the infuscation itself dark reddish brown. *Hypopygium* with fairly long hairs on dorsal part of neck region of basal parts; aedeagus (text-fig. 99, *b*) with the keel fairly deep; lateral struts comparatively short; basal strut relatively broad, projecting only slightly basally, with the dorsal incision more or less rectangular.

Locality.—Transvaal: Baberton.

1 ♂ *S. rhodesianus* n. sp.

Body black; scutellum, excepting black base, central basal macula and hind border, reddish; sides, especially along hind margins, of abdomen above broadly pale reddish; face, genae and also head

below yellowish, and venter also yellowish; legs yellowish, the posterior face of front femora, however, darkened, the apices of hind tibiae and all the tarsi more brownish, the apices of the tarsi distinctly dark brownish and the apices of claws black; general pubescence, viewed from above, soft subgolden yellowish on thorax and soft creamy whitish on abdomen, becoming paler towards apex; viewed from the side, the hair on occiput and thorax in front pale creamy white with a silky sheen, that on disc slightly more yellowish in certain lights, that on sides in front of wings and also on side of head distinctly more fulvous yellow in certain lights, that on abdomen above soft pale creamy white, more distinctly yellowish basally and whiter apically, the hair on head below, pectoral and pleural regions and venter basally and laterally whitish, the metapleural tuft whitish in certain lights and the upper parts of pleurae feebly yellowish, with the pubescence on frons and face laterally pale yellowish sericeous, with the bristly hairs on ocellar tubercle, sides of frons, antennal joints above and the hairs intermixed on face and genae dark brownish black, the macrochaetae, posterior callar bristles and those on scutellum pale yellowish straw-coloured, those on abdomen pale creamy whitish or yellowish like the rest of the hair; wings with a brownish infuscation in basal half of marginal cell, basal part of first submarginal cell, first and second basal cells, extreme bases of anal and axillary cells and alula, with the costal cell and extreme base apparently darker and more subopaquely brownish yellow, the rest of wing practically hyaline, with the basal comb dark brownish black and the scaling behind it pale yellowish sericeous, with the veins pale yellowish brown, becoming paler basally and more reddish brown along first and third longitudinal veins and with faint brownish infuscations at base of third longitudinal vein, on discal cross vein and a more distinct one on basal cross vein of fourth posterior cell, with the squamae opaquely pale brownish yellow and white fringed; halteres yellowish, with whitish knobs. *Head* with the interocular space about as broad as ocellar tubercle; face with the bristles comparatively stout, stiff and rigid; antennae with joint 3 subequal to 1 and 2 combined, thickened in basal half, broadest at about basal fourth, gradually narrowed apically, but slightly more rapidly on inner side, with the first terminal joint narrower than apex of 3 and longer than the style; proboscis slender, about 5½ mm. long. *Abdomen* with the pubescence dense, slightly longer towards apex and sides, the bristles slender and scarcely distinguishable from the hair. *Legs* with longish hairs confined to extreme bases of femora and not very

conspicuous or long, often with small apical spines above on front and middle femora; front ones with a small spine in front and 1 behind in apical part; middle ones with 2 spines below; hind ones with about 9 spines below on outer side and 3 or 4 on inner side; claws comparatively slender and gradually curved downwards apically. *Hypopygium* much like that of *tumidifrons* Bezz., but with the beaked apical joints slightly longer; aedeagus (text-fig. 104) with the keel, at broadest part, slightly broader than in *tumidifrons* and slightly more flattened anteriorly; basal strut slightly narrower and the dorsal incision feeble and not deeply angular.



Text-fig. 104. Side view of aedeagus of ♂ *Systoechus rhodesianus* n. sp.

Type in the Transvaal Museum.

Length of body: about 8 mm.

Length of wing: about 8 mm.

Locality.—S. Rhodesia: Hopefountain (Swinburne and Stevenson, 12/9/22).

This species is easily recognised by its soft yellowish pubescence anteriorly and soft creamy white abdominal hair, basally infuscated wings, etc. From *tumidifrons* Bezz. it is separated in the key.

1 ♀ *S. leucostictus* n. sp.

Body black; scutellum shining black, but with a slight and obscure rufous tint posteriorly; legs entirely black, only the basal halves of the claws being pale yellowish brown; pubescence above white, with a silvery or silky white sheen in certain lights, the bristly hairs on occiput white, those on ocellar tubercle, sides of frons, on first antennal joints, those on face (intermixed with whitish hair), macrochaetae in front of wings and bristles on upper part of mesopleuron and in front of wings, those on posterior calli, scutellum, transverse ones on abdomen above and towards apex on venter below dark blackish brown or black, with a few bristles intermixed on front part of thorax slightly paler brownish and a few ones intermixed with the white ones on coxae also more brownish; the pubescence and bristly hairs in basal half of venter white, that towards apex with a slight brownish tint, with the scaling on legs pale brownish to blackish brown; wings more or less translucent, feebly tinged smoky or cinereous, the extreme base and front part up to end of costal cell and extending obliquely across discal cross vein to basal cross vein of fourth posterior

cell and to extreme base of anal cell darker and more brownish black, but imperceptibly merging into more hyaline part, with the base, costal and first basal cells more yellowish or whitish brown, with the basal comb black, the veins brownish black, with the squamae opaquely brownish and white fringed; halteres dark brownish, with pale yellowish brown knobs. *Head* with the interocular space broad, nearly or quite 5 times as broad as ocellar tubercle; antennae with joints 1 and 2 combined slightly shorter than 3 (terminal joints excluded), with 3 broadest just before base, gradually narrowed to apex, with the first terminal joint nearly as broad basally as apex of 3 and about as long as slender style; face tending to be slightly tumid on sides, with fairly stoutish bristles, even along sides of genae to below middle; proboscis about 3½ mm. long. *Abdomen* with the transverse rows of bristles stout and long, longer than the hair and much longer posteriorly, fairly broadly interrupted medially above on segment 2 and scarcely on the rest. *Legs* with a few apical spines above on front and middle femora; front ones with 1 or 2 spines in apical half below; middle ones with 3 or 4 spines in front and 2 feebler ones behind; hind ones with about 7 spines on outer side below and 3 in apical part on inner side.

Type in the Transvaal Museum.

Length of body: about 7 mm.

Length of wing: about 7½ mm.

Locality.—S.E. Karoo: Willowmore (Brauns, Oct. 1916).

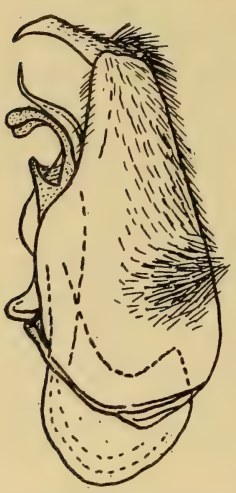
This species is easily distinguished from all others in this series by its greyish black appearance, due to white pubescence and black bristles; entirely black legs and the almost hyaline wings, which are infuscated brownish black at base and along the costal cell.

1 ♂ 2 ♀♀ *S. transvaalensis* n. sp.

One ♂ and 2 ♀♀ before me, though from widely separated localities, agree in so many specific characters that there is no doubt that they belong to one species which probably has a wide range of distribution in the northern parts of South Africa, replacing there the closely related *poweri* n. sp. which, on the other hand, extends from Kimberley and the O.F.S. into the Karoo.

Black; the face in front, the genae and to a certain extent front part of head below tending to be obscure yellowish or brownish or even darker; scutellum with the apical part in ♀♀ reddish, in ♂ almost entirely dark, only the extreme hind part being slightly tinted

rufous; legs pale yellowish brown, with the basal halves of front femora and extreme bases of the others, slightly more distinct in ♂, darkened, with the apical parts of hind tibiae and all the tarsi blackish brown, the apices of the claws black; pubescence straw-coloured whitish in ♂, straw-coloured yellowish in ♀♀, that on abdomen with a slightly more yellowish tint especially towards apex in ♀♀, that on head and body below scarcely paler than above, with the bristly hairs on ocellar tubercle, frons, antennae and face dark blackish brown, with all the bristles on thorax and scutellum in both sexes straw-coloured, those on abdomen in ♀♀ entirely straw-coloured yellowish and those on sides slightly more yellowish than the hair, with only a few very inconspicuous darkish ones laterally in ♀ (their bases only being darkish), with slightly more intermixed pale hairs on face in ♀♀; wings greyish hyaline, with the base, costal cell, first basal cell and to a certain extent base of second basal cell yellowish brown, with the veins brownish, the basal comb poorly developed and black, with the squamae opaquely yellowish white and fringed with whitish or straw-coloured whitish hairs, with the second longitudinal vein tending to be more straight and with its apical part not very sinuously bent upwards; halteres yellowish brown, with pale yellowish white knobs. *Head* with the interocular space in ♂, at narrowest part, about as broad as front part of tubercle, but much narrower than posterior part of tubercle, in ♀♀ not quite or scarcely 4 times as broad as tubercle; frons in ♂ with the central furrow shallow but distinct; antennae with joint 1 not, or scarcely, 4 times as long as joint 2, with 3 subequal or equal to joints 1 and 2 combined, more or less rapidly narrowed apically from a broader base, especially in ♀♀, the apical part or third being slender; proboscis about 3–4 mm. long. *Legs* without any apical spines above on front and middle femora and with the front ones unarmed below; middle femora with about 1 or 2 spines on apical lower aspect and often with 1 or 2 behind; hind ones with about 4–5 spines below from just before middle to apex and 2–3, mostly in apical half, on the inner side below. *Hypopygium* of ♂ (text-fig. 105).



Text-fig. 105.—Side view of hypopygium of ♂ *Systoechus transvaalensis* n. sp.

Holotype in the South African Museum, allotype and paratype in the Transvaal and British Museums respectively.

Length of body: about $5\frac{1}{2}$–$6\frac{1}{2}$ mm.

Length of wing: about 6–7 mm.

Locality.—Transvaal: Louis Trichardt (Lawrence, Feb. 1928) (Holotype); Pretoria (Curson, 1924) (damaged Paratype). O.F.S.: Bloemfontein (Irving, 4/12/20) (Allotype).

This small species is very near *poweri* n. sp., from which it differs in having a distinctly narrower interocular space in ♂, distinctly fewer black bristly hairs on sides of abdomen in ♂, no black bristles on abdomen in ♀, not entirely black scutellum, very dark or entirely blackish legs, very much narrower interocular space in ♀, etc.

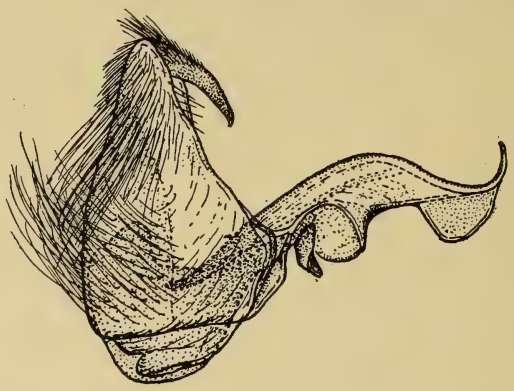
S. nigripes Lw.

(P. 13, Wien. Ent. Monat., vii, 1863.)

Bezzi (p. 43, Ann. S. Afr. Mus., vol. xviii) referred a ♂-specimen from Klerksdorp and another ♂ from Kimberley to *nigripes*. A careful comparison of the specimen from Kimberley with Loew's description of a ♂ from the Orange Free State shows that the Kimberley specimen cannot be referred to *nigripes* as it has a different type of wing infuscation and also possesses distinct black hairs on sides of the abdomen posteriorly. The Klerksdorp specimen, on the other hand, agrees with Loew's short description. In addition to this latter ♂ there are 5 other ♂♂ from the Eastern Province and 3 ♀♀ from the same localities and which I have no doubt in placing here. As Loew's description is very short and inadequate, a fuller description of this species is as follows:—

Body entirely black; legs with the femora black, the tibiae often also dark, but sometimes slightly paler and dark brownish or even yellowish brown in both sexes; antennae in both sexes also black or dark; pubescence very pale yellowish white to straw-coloured in ♂♂, the effects in certain lights changeable, that on occiput and front part of thorax very pale straw-coloured whitish, that on sides of thorax in front of wings tinted slightly more yellowish, that on abdomen above pale yellowish white, becoming paler and more distinctly whitish apically, that on sides of face laterally and in front sericeous whitish, that on head below and rest of body below soft whitish and slightly paler than above, that on upper parts of pleurae paler yellowish white and that at apex of venter very soft pale yellowish, with the bristly hairs on ocellar tubercle, sides of frons, on antennal

joint 1 above, some intermixed ones on face and upper parts of genae blackish brown to black, with the macrochaetal bristles in front of wings yellowish to brownish and those on post-alar calli and scutellum whitish, with the transverse bristles on abdomen whitish like rest of pubescence, those on venter sometimes with a few darkish ones laterally, with the pubescence in ♀♀ predominantly pale sericeous yellowish to gleaming golden yellowish above, that on head below more sericeous whitish, that on pleural parts also paler and more



TEXT-FIG. 106.—Side view of hypopygium of ♂ of *Systoechus nigripes* var. *plebeius* n.

whitish than above, that on abdomen gleaming even more sericeous to pale golden yellowish than in front, with the bristly hairs on tubercle and sides of frons and intermixed on face and sides of face and genae also blackish brown to black as in ♂♂, the macrochaetal bristles in front of wings very pale yellowish brown or even more yellowish like the post-alar and scutellar ones, with the transverse bristles across hind margins of abdomen above predominantly yellowish or sericeous yellowish discally, only those on sides of the tergites from 3 to apex darker and even blackish brown; wings with the anterior two-thirds in ♂♂ pale yellowish brown to reddish brown, the infuscation extending from about end of costal cell obliquely across basal halves of marginal and first submarginal cells, first posterior and discoidal cells, across base of fourth posterior cell to apex of anal and axillary cells, being darker basally and gradually merging into the clearer and more yellowish greyish tinged apical part, with the wings distinctly less tinged in ♀♀ and more greyish, becoming more yellowish brown and darker basally, with the basal comb in both sexes black, with the veins brownish or reddish brown,

but paler and more yellowish brown towards base, with the squamae subopaquely yellowish white and fringed with whitish hairs; halteres yellowish and with very pale yellowish knobs. *Head* with the eyes in ♂♂ separated above, the space at its narrowest part, about as broad as front part of ocellar tubercle, with the interocular space in ♀♀ about 4, or even a little less, times as broad as tubercle; frons in ♂♂ comparatively convex and with a deep and distinct central furrow, with the transverse depression in ♀♀ in front of tubercle also distinct; face somewhat tumidly prominent on sides when viewed from directly above and in profile slightly spout-like; antennae with joint 1 about 3, or even a little more, times as long as 2, with 3 broadest just before base, ending apically in a more or less distinct basal nodule-like terminal element which itself ends in a short style; proboscis about 3–4 mm. long. *Legs* with a few feeble spines apically above on front and middle femora; front ones unarmed; middle ones with about 2 spines below, hind ones with about 7–8 spines below; claws normally curved down apically and the pulvilli long. *Hypopygium* of ♂ (text-figs. 106 and 107) with fairly dense and long hairs on basal parts above, especially in neck region; beaked apical joints elongate, not depressed above and directed outwards apically; aedeagus with the keel less developed than in *albidus* and *tumidifrons*; basal strut very angularly incised along its dorsal margin.

Length of body: about 6–8 mm.

Length of wing: about 6½–8 mm.

Locality.—S. Western Transvaal, O.F.S. and Eastern Cape Province. (In the Imperial Institute, Albany and South African Museums.)

This species is easily recognised by its dark infuscated wings in the ♂♂, the dark or blackish legs and its pale pubescence.

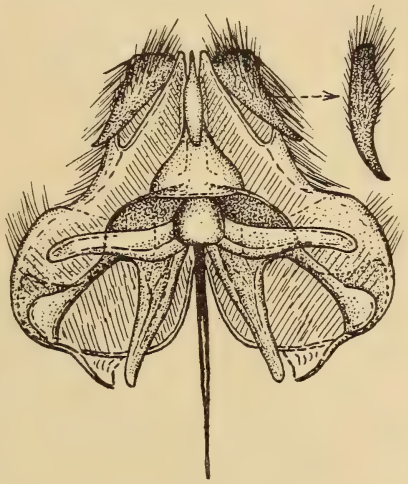
Numerous ♂♂ and ♀♀ *S. nigripes* var. *plebeius* n.

These ♂♂ and ♀♀, though not differing structurally from the typical *nigripes*, differ in colour details, and more especially in the case of the pubescence, colour of legs and of the wings. As these differences are to a certain extent important they are referred to a distinct and separate variety of *nigripes*, even though some examples from the Eastern Karoo and from the South-Western Karoo deviate in the direction of the typical *nigripes* or even constitute another variety or form of *nigripes* (*see* below). A detailed description of the variety *plebeius* is as follows:—

Body, including scutellum and sides of abdomen, even in ♂♂,

entirely black; antennal joint 1 in ♀♀ more often reddish to pale yellowish red; hind margins of ventral segments in ♂♂ narrowly pallid or often whitish and the apical part of exposed hypopygium pale reddish to pale yellowish brown; legs pale yellowish brown in ♀♀ to pale brownish in some ♂♂, with the front femora, often to beyond middle, and the lower surfaces or bases of middle and hind ones in majority of ♂♂ brownish black to black, with the scaling pale yellowish white to yellowish, the apical parts of tibiae, especially hind ones, and the tarsi dark brownish black; pubescence above pale yellowish white to very pale yellowish brown, showing different sheens and shades in different positions, the occipital hair and that on thorax in front whitish sericeous from in front, that on disc of thorax and scutellum yellowish sericeous to subgolden or even pale fulvous, especially in some ♂♂, the hair and bristles in front of wings even more distinctly yellowish to fulvous, the dense pubescence on frons, especially antero-laterally and on face in front whitish sericeous to silvery whitish, the bristly hairs on ocellar tubercle, on first antennal joints above, sides of face and frons and upper parts of genae dark brownish black to black, with the apical parts of some of the hairs in mystax above often tinted slightly yellowish, the pubescence on abdomen above sericeous or very pale yellowish white, paler and more whitish in ♂♂ and also distinctly whiter, more silvery towards apex in ♂♂, with the sides in basal half, especially in ♂♂, more distinctly pale yellowish, with the bristles across hind margins whitish in ♂♂ like the rest of hair, but often with only a few darker ones intermixed laterally, in ♀♀ with those laterally and in apical half blackish brown to black and those discally in basal half yellowish, those on posterior calli and scutellum yellowish, the hair on body below white, that along upper parts of mesopleurae, however, being more yellowish white to yellowish, the venter in ♂♂ on segments 4–6 with yellowish to pale fulvous hair, that on sides being more distinctly and even darker fulvous to brownish yellow, less so in ♀♀ and bristles in apical half in both ♂♂ and ♀♀ dark brownish to black; wings with a smoky mauvish infuscation, the anterior two-thirds in ♂♂ up to end or slightly beyond costal cell and extending obliquely from greater part of base of marginal cell, across basal half of first posterior cell, almost entire discoidal cell, across fourth posterior cell to end of anal cell deeply mauvish brown, the infuscation becoming darker basally and along the longitudinal veins in this area and gradually fainter towards clearer apical and posterior parts, with this infuscation in the ♀♀ less extensive, only slightly more darkened across cross veins, in second

basal cell and base of anal cell, with the costal cell, first and second basal cells and extreme base in both sexes distinctly more opaquely yellowish, with the veins brownish, more reddish brown towards base and along first longitudinal vein, with the basal comb black and with very pale yellowish sericeous scaling behind it, with the squamae opaquely yellowish white and fringed white or very pale yellowish white; halteres brownish, with yellowish white knobs. *Head* with the interocular space in ♂♂ about as broad as ocellar tubercle, narrowest part in front of front ocellus only very slightly narrower than tubercle is broad across lateral ocelli, quite 3½ times as broad as tubercle in ♀♀; antennae with joint 3 subequal to or a little longer than 1 and 2 combined, broadest near base, slightly broader in ♀♀, with joint 1 about 3 times as long as 2; proboscis slender, about 3–4 mm. long. *Wings* in ♂♂ slightly longer and narrower than in ♀♀, slightly more rounded apically in ♀♀. *Legs* with 1–3 apical spines above on front and middle femora; front ones unarmed below or with only a small spine towards apex below in front; middle ones with 2–4 spines in front and 1–2 small ones behind; hind ones with about 5–9 larger and smaller spines below. *Hypopygium* of ♂ (text-figs. 106 and 107) as in typical forms of *nigripes*.



Text-fig. 107.—Ventral view of hypopygium of ♂ of *Systoechus nigripes* var. *plebeius* n.

Types in the South African Museum.

Length of body: about 5–8 mm.

Length of wing: about 6–8 mm.

Locality.—Namaqualand: Garies Distr.; Klip Vlei (Mus. Exp, Nov. 1931) (Types); Bowesdorp (Mus. Exp., Nov. 1931); Kamieskroon (Mus. Exp., Sept. 1930). E. Cape Province: S.E. Karoo; Somerset East (Turner, Nov. 1930) (British Museum).

This is one of the commonest Bombyliids in Namaqualand, and it is surprising that this variety has never been recorded before. It is mostly found settling on sandy places and is also very common on

the flower-clusters of Mesembryanthemums. The ♀♀ also resemble the ♀♀ of *aberrans* n. sp., from which they differ in having the hair on occiput and thorax above much paler whitish and less yellow, black mystax, broader interocular space, entirely black scutellum, etc. Specimens from the Eastern Karoo differ from the typical Namaqualand form in having almost entirely dark legs in the ♂♂, and also with distinct dark or blackish bristles on sides of segments 2 and 3 in the ♂. Some ♀♀ from Calvinia (Mackie, 11–16/11/31), in the Imperial Institute, constitute still another form, characterised by having paler and more pale yellowish brown or pale golden brownish bristly hairs on face, also slightly paler bristles on sides of abdomen and with the integument of face, laterally at least, also paler and more reddish brown.

1 ♂ *S. nigripes* var. *nomteleënsis* n.

This specimen from Ovamboland was labelled by Bezzi as *nigripes* Lw., which it no doubt resembles. It differs, however, in being much larger, about 9 mm. long and with a wing-length of about 10 mm.; head with the interocular space also about as broad as ocellar tubercle, but with the pubescence on frons, sides of face and the hairs in mystax more creamy whitish, the mystax also denser and with fewer blackish hairs, with the face slightly broader, with the proboscis slightly longer and quite 4½ mm. long; pubescence above about the same in colour, but that on thorax above more creamy whitish and less apparently whitish, that on abdomen laterally and towards apex and towards apex on venter distinctly less white, more creamy yellowish, with more dark bristles on sides of abdomen present on most of the tergites and with the macrochaetal bristles in front of wings much paler and yellowish white. *Wings* slightly more dark brownish in anterior two-thirds, more like that of the var. *plebeius*, with the axillary lobe apparently broader and more developed, the basal comb also larger. *Legs* entirely black, the tibiae as dark as femora and on the whole darker than in *nigripes* s.str., without any sign of apical spines on front and middle femora above, with about 2–5 spines on middle femora below and about 7 on hind femora below. *Hypopygium* like that of *nigripes* and other varieties (cf. text-figs. 106 and 107); aedeagus with the keel, however, more reduced, but the dorsal incision in basal strut as deep as in *nigripes* s.str. and the var. *plebeius*.

Type in the South African Museum.

Locality.—S.W. Africa: Ovamboland; Nomtele (Barnard, Feb. 1921).

1 ♂ *S. stevensoni* n. sp.

Body, including scutellum, black; legs with the femora entirely black, only the apices or knees being yellowish and the hind ones slightly more dark blackish brown towards apex, with the tibiae dark blackish brown, the scaling on femora greyish white on front and middle ones and dull yellowish on hind ones; pubescence long as in *nigripes*, that on face dense and bushy, deep golden or brownish yellow on body above and when viewed from side slightly paler orange golden, that on sides in front of wings and to a certain extent on propleurae deeper and more fulvous or brownish golden, that on abdomen above (where not denuded) more or less shaggy, paler orange golden, becoming paler and even pale yellowish white towards apex, that on pectoral and pleural regions paler than above, even more yellowish sericeous, but that on the upper parts, however, more golden yellow and the metapleural tuft pale fulvous or pale brownish yellow in certain lights, the venter with pale golden hair basally, slightly paler along sides near base, darker and more brownish golden towards apex, with the transverse rows of bristles on abdomen above dark blackish brown from segments 2–5, the pubescence on frons, sides of face and the hairs on face in front very pale creamy whitish or yellowish sericeous, the hairs on head below conspicuously white, the bristly hairs on ocellar tubercle, frons, some above and below on first antennal joints, intermixed ones on sides and apex of face and on genae dark purplish or blackish brown, with a large number of bristles on sides of first antennal joints very pale and almost white; wings faintly infuscated with brownish or mauvish, almost imperceptibly becoming darker and distinctly brown towards base and more or less obliquely from end of costal cell, basal half of marginal cell, across bases of first posterior and discoidal cells, base of fourth posterior cell to anal and axillary cells and alula, with the extreme base, costal cell and first basal cell more opaquely brownish yellow, with the basal comb black and with yellowish sericeous scaling behind it, with the veins brownish, becoming paler and more reddish brown basally and along first longitudinal vein, the squamae opaquely pale yellowish brown, dark-bordered and with a pale fulvous fringe; halteres brownish, with very pale yellowish white knobs. *Head* with the interocular space, at narrowest part, only slightly narrower than posteriorly and about as broad as front part of tubercle; face on sides slightly tumidly prominent; antennae with joint 1 only very little shorter than 3 (terminal joints excluded),

and with 1 and 2 combined longer than 3, with 3 broadest at about basal third, rather rapidly narrowed apically, the apical third being slender and slightly enlarged at apex, with the first terminal joint small, conical and shorter than style; proboscis about 5 mm. long. *Legs* without any spines apically above on front and middle femora; front ones unarmed; middle ones with about 3 or 4 spines in front and 1 or 2 behind; hind ones with about 7–9 spines, smaller and larger ones, below and about 3–6 on inner side mostly in apical aspect; claws not very rapidly curved downwards apically. *Hypopygium* like that of *nigripes* var. *nomteleënsis*; aedeagus also with a reduced keel, but even smaller than that of var. *nomteleënsis*.

Type in the Transvaal Museum.

Length of body: about 9 mm.

Length of wing: about 10 mm.

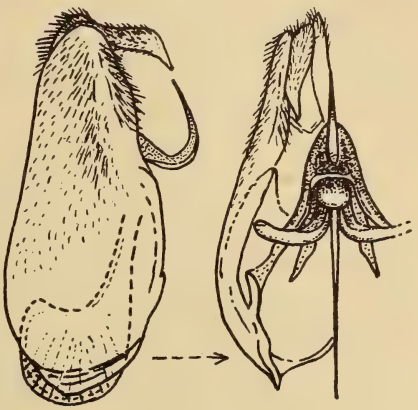
Locality.—S. Rhodesia: Bulawayo (Stevenson, 8/12/24).

Easily recognised by its brownish golden pubescence, brownish infuscated wings, black scutellum and dark legs. It resembles *kalaharicus*, but differs in having pale brownish yellow golden hair above and not pale yellowish pelt-like pubescence, dark or blackish legs, no red on sides of abdomen, black scutellum, etc. It is very near *nigripes* var. *nomteleënsis* n. from which, however, it is at once distinguished by the brownish golden or yellowish pubescence and by characters given in the key.

2 ♂♂ *S. fusciventris* n. sp.

Body entirely black; legs also dark brownish black to black, with the apices of the claws also black; pubescence on occiput, thorax above and abdomen above longish, shaggy, dark greyish to beyond scutellum and soft whitish posteriorly when viewed from above, when viewed from side, it is pale silky whitish to pale yellowish whitish on thorax above, but paler and more distinctly whitish towards apex of abdomen, that on face dense and bushy, that on head above dark blackish, with the bristly hairs on ocellar tubercle, antennae, frons and mystax entirely black, the hair on sides of thorax and head in front of wings dark blackish brown, that on head below, pectoral and pleural regions, extreme sides of abdomen above and sides of venter below very dark velvety or fulvous brown and, when viewed from in front, more fulvous brown, the metapleural tuft slightly paler, almost yellowish white in certain lights and upper parts of mesopleurae under the wings more blackish brown in certain

lights, the macrochaetae in front of wings blackish brown, bristles on posterior calli and scutellum whitish, with the transverse rows of bristles on abdomen above laterally and apically dark brownish, becoming denser on sides ventrally below, with the bristles towards apex of venter also blackish; wings faintly tinged smoky, the anterior basal part blackish brown, the infuscation extending from end of costal cell obliquely across base of marginal cell, extreme base of first submarginal cell, base of first posterior cell, base of discoidal cell, across basal cross vein of fourth posterior cell to basal halves of anal and axillary cells, imperceptibly merging into clearer apical and posterior parts and slightly darker towards base of wing, with the veins dark brownish but paler towards base, with the basal comb small and composed of a few blackish spines intermixed with almost pale fulvous hairs and scaling, with the first posterior cell somewhat acute apically, the squamae dark brownish opaque and with a pale yellowish white or sericeous fringe; halteres dark brownish, with dark brownish knobs. *Head* with the interocular space, at narrowest part, about as broad as front part of ocellar tubercle; frons with a distinct and comparatively broad central furrow; face somewhat tumid on sides; antennae with joints 1 and 2 combined subequal to 3, with joint 1 a little more than 3, nearly 4, times as long as 2, with 3 only very little thickened near base, comparatively rod-like, with the first terminal joint small and conical, much shorter than slender style; proboscis very slender and straight, about 2 mm. long; face with a comparatively dense mystax, bristly hairs even being present towards lower part of genae and on lower angle of buccal cavity. *Legs* without any apical spines above on front and middle femora; front ones with long hairs on posterior aspect, but unarmed; middle ones without any or with only 1 feeble spine below, but with long hairs; hind ones with long and slender hairs basally below on inside and with 4–5 comparatively slender spines below from just before middle to apex; front and middle tibiae with the lower outer row of



TEXT-FIG. 108.—Side view and half of ventral view of hypopygium of ♂ *Systoechus fusciventris* n. sp.

spicules either dark as the rest of the spicules or as in the paratype slightly paler. *Hypopygium* (text-fig. 108) with the aedeagus sickle-shaped, without any or with a vestigial keel below.

Type in the Transvaal Museum, paratype in the South African Museum.

Length of body: about 5½ mm.

Length of wing: about 5 mm.

Locality.—S.E. Karoo: Willowmore (Brauns, Apr. 1923) (Type). Eastern Province: Fort Brown (Walton) (Paratype).

This small species differs from all other small forms by its dark brownish or fulvous brown pubescence on body below, contrasting with the much paler whitish hair above, the entirely black mystax, etc.

6 ♂♂ 4 ♀♀ *S. argyroleucus* n. sp.

Body and legs entirely black, the tibiae in the ♀♀, however, often slightly more blackish brown basally, with the bases of claws brownish; pubescence longish and somewhat shaggy, when viewed from above, dark greyish in front and whitish in posterior half, that at apex of abdomen being white, but when viewed from the side, the hair on occiput, thorax above, scutellum and abdomen above intensely silky or silvery whitish, the reflections being more apparent in ♂♂, that on sides in front of wings with a slightly more yellowish tint and more so in ♂♂, that on abdomen above slightly greyish basally in certain lights, but in others intensely silvery whitish, the apical part in ♂♂ being distinctly silvery white, the hair below on head, pectoral and pleural regions, metapleural tuft and venter also white but with the silvery sheen slightly less developed and that on the prosternal part, continuous with sides of thorax, slightly more yellowish, that on apical part of venter also distinctly more pale yellowish white, slightly more yellowish in ♀♀, the pubescence on sides of frons, face and in front dense, somewhat shaggy, the fine depressed pubescence yellowish white to silvery whitish, the bristly hairs on ocellar tubercle, frons, first antennal joints and on face black, with a few paler ones showing through those at apex of face, the macrochaetae, bristles on posterior calli and on scutellum whitish, with the transverse rows of bristles on abdomen above in ♂♂ fine and entirely white, in ♀♀ whitish but becoming darker and more pale yellowish to pale brownish yellow posteriorly, the venter in ♀♀ also with darker bristles towards apex and with even blackish ones at apex below; wings greyish hyaline, but with a feeble smoky tinge, the costal cell, base and first

basal cell and often the bases of second basal and anal cells more darkly yellowish brown, brownish to dull smoky brownish, with the veins blackish brown, paler and more brownish towards base, with the basal comb black and whitish-scaled behind, the squamae opaquely yellowish brown or dull greyish brown and white-fringed; halteres blackish brown, with pale yellowish white or ivory whitish knobs. *Head* with the interocular space in ♂♂, at narrowest part, about as broad as front part of ocellar tubercle, quite 3½ times as broad as tubercle in ♀♀; eyes in ♂♂ with the upper facets distinctly coarser; frons in ♂♂ slightly convex discally, with the central furrow deeper and more distinct basally; face with the sides somewhat tumid; antennae with joint 3 longer than 1 and 2 combined, thickened in basal half in ♀♀, more slender in ♂♂, broadest in basal third in ♀♀, from there more rapidly narrowed apically than in ♂♂, with the first terminal joint conical, very nearly as broad as apex of 3 and shorter than style; proboscis about 3–4 mm. long. *Legs* without any apical spines above on front and middle femora or with a very feeble one; front ones unarmed; middle ones with about 2–4 spines in front and 1–2 behind; hind ones with about 6–8 spines below; claws rather rapidly curved downwards apically and the pulvilli extending a little beyond middle of claws, comparatively shorter than in many other species. *Hypopygium* of ♂ resembles that of *nigripes* and its varieties, with the aedeagus structurally similar to that of *nigripes* (cf. text-figs. 106 and 107); the rest of hypopygium differing from those of the above-named species in having distinctly much longer and slender beaked apical joints, nearly half the length of the basal parts, with the hairs on dorsum of basal parts also comparatively denser and longer, with the dorsal incision in basal strut even slightly deeper.

Types in the South African Museum.

Length of body: about 6–8½ mm.

Length of wing: about 6–7½ mm.

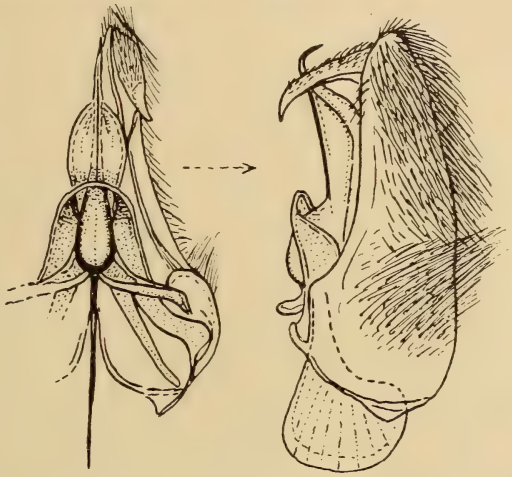
Locality.—Namaqualand: Garies Distr.; Klip Vlei (Mus. Exp., Nov. 1931).

Recognised by its entirely black body, black scutellum and legs, soft velvety or silvery white pubescence, etc. From *nigripes* it is distinguished by the much less extensively infuscated anterior part of wings, more distinct silvery hair, etc.

1 ♂ 1 ♀ *S. lightfooti* n. sp.

Body, including scutellum, black, the latter in ♀ with a slight rufous tint; venter more or less dark brownish or black; legs dark, the femora dark brownish and the tibiae more sienna brown, with the apical parts of tibiae and the tarsi blackish; pubescence, viewed from above, more or less brownish in effect, that on sides and apex of abdomen becoming whitish, viewed from the side, the hairs on occiput very pale yellowish sericeous, that on thorax in front white, more yellowish sericeous on disc, that on sides in front of wings distinctly deeper yellowish, that on abdomen above deep creamy yellowish or yellowish sericeous in certain lights, becoming whiter in other positions and apically distinctly white, that on sides of frons, sides of face silvery whitish, those on face in front, intermixed with black ones, straw-coloured yellowish, with the bristly hairs on ocellar tubercle, antennal joint 1 above, more densely on face and on genae blackish, the hair on head below, middle of pleural regions, the pectus and sides of venter basally as well as side of segment 1 silvery whitish, those in metapleural tuft having a distinct pale yellowish sericeous sheen, those on propleurae and on front coxae also more pale yellowish sericeous, with the bristles in front of wings, on posterior calli, on scutellum and transversely on abdomen black, those towards apex with slightly paler tips especially in the ♂; wings tinged brownish in basal part from end of costal cell and across apices of first and second basal cells to bases of anal and axillary cells, with the costal cell and extreme base more opaquely brownish yellow, the rest of wing almost hyaline, the basal comb black, the veins pale brownish yellow to brownish, becoming paler basally and more reddish brown along first longitudinal vein, especially in ♂, showing a slight infuscation on apical cross vein of second basal cell, the squamae dull opaquely yellowish to whitish and with a creamy or almost whitish fringe; halteres yellowish, with almost white knobs. *Head* with the interocular space in ♂ as broad as tubercle, about 4 times as broad as tubercle in ♀; antennae with joints 1 and 2 combined shorter than 3, with 1 about 3 times as long as 2, with 3 very little thickened basally in ♂, slightly more so in ♀; proboscis slender, about 3–3½ mm. long, the minute spinules below practically invisible. *Legs* with some minute spines above apically on front and middle femora; front ones unarmed below; middle ones with about 1 or 2 spines in front and 1 behind; hind ones with about 6–7 spines below and about 4–5 smaller ones on inner aspect below. *Hypopygium* of ♂ (text-fig. 109)

with longish hairs on dorsum of basal parts and along dorsum of neck region; beaked apical joints elongate, bent downwards and slightly outwards apically; aedeagus without any or with a very vestigial keel below, but distinctly belonging to the ventrally keeled series, no processes being present on each side below.



Text-fig. 109.—Half of ventral view and side view of hypopygium of ♂ *Systoechus lightfooti* n. sp.

Holotype in the South African Museum, allotype in the British Museum.

Length of body: about 5½–7 mm.

Length of wing: about 5½–7 mm.

Locality.—W. Cape Province: Ceres Distr.; Matroosberg, 3500 ft. alt. (Lightfoot, Nov. 1917) (Holotype). S. Cape Province: Swellendam (Turner, Nov. 1933) (Allotype).

The infuscation of the wings of this species is like those of *rhodesianus*, but the transverse bristles on abdomen are black and the legs are also darker.

4 ♂♂ 10 ♀♀ *S. inordinatus* n. sp.

(Syn.=*mixtus* Bezz. nec Wied.)

Some specimens of this species have been referred to *mixtus* by Bezzi (p. 43, Ann. S. Afr. Mus., vol. xviii), and it is possible that some of the specimens referred to the same species by Bezzi (p. 70, Bombyliidae of the Ethiopian Region), especially those from Natal

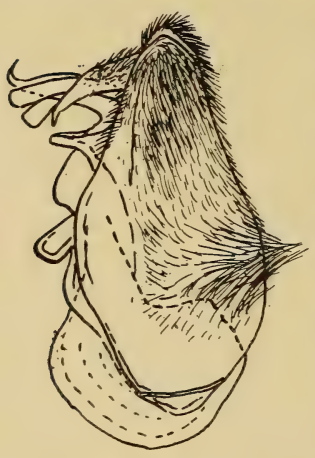
and Transvaal, as well as those from Pretoria, determined as *mixtus* by Ricardo (p. 91, Ann. Mag. Nat. Hist., vol. vii, 1901), belong to other species or to this species. Apart from 2 ♀♀ from Salisbury and Karino, labelled by Bezzi as *mixtus*, the Transvaal Museum has another ♀-specimen labelled as *stylicornis* Macq. A careful comparison with Wiedemann's original description of *mixtus* (p. 336, Aussereurop. Zweifl. Ins., part i, 1828) and Loew's redescription, in part (p. 189, Dipt. Faun. Südafr., i, 1860) would at once exclude this species. Wiedemann distinctly states "Hinterleib an jeder Seite mit einzelnen schwarzen Borsten" . . . "Brust weisslich behaart" . . . "Flügel sehr wasserklar, kaum an der Wurzel, den angränzenden Rippenzellen und vor einer kleinen Mittelader schmutzig gelblich," whereas Loew states on p. 190 (loc. cit.) "Flügel graulich glasartig, von der Wurzel am Vorderrande hin bis uber die Mündung der ersten Längsader hinaus mit rostfarbig brauner Trübung." The wings in these specimens before me show a distinct and more extensive infuscation, occupying almost the entire base, first and second basal cells as well as basal half of anal cell and extreme base of axillary cell, which according to both Wiedemann and Loew's descriptions, is not the case in *mixtus*, where the yellowish white infuscation is confined to extreme base, costal cell and first basal cell ("vor einer kleinen Mittelader schmutzig gelblich"). Moreover there are no "einzelnen schwarzen Borsten" *laterally* only on abdomen as stated by Wiedemann (contradicted by Loew, from whose description it is evident that he confused specimens of *mixtus* with ♀♀ and ♂♂ of other species, possibly this species or others). In these ♀-specimens before me all the lateral transverse rows of bristles and also the entire rows on tergites 4 to apex of abdomen above are stout and black. The description of *stylicornis* Macq. (p. 92, Dipt. Exot., part i, 1838) is so vague that it may be ignored and possibly refers to some other large species of *Systoechus* with partly red antennae.

A description of *inordinatus* n. sp. is as follows:—

Body black; scutellum, excepting narrow black base and often hind borders laterally, reddish to ferruginous; posterior calli more or less obscurely reddish and in ♂♂ the extreme sides of abdomen often obscurely or indistinctly reddish; apical part of face and upper parts of genae in ♀♀ also yellowish red to reddish; hind margins of sternites narrowly, especially the basal segments, pallid and, exposed part of ♂-genitalia, brownish; legs pale brownish or reddish yellow, the front and middle femora in ♂♂ brownish black to black to even beyond middle and the hind ones darkened only at base,

with the front faces of front ones also darkened, in ♀♀ infuscation is confined to extreme bases, with the front faces of front tibiae also darkened, the apices of all tibiae blackened, the tarsi darkened and more so apically, with the claws almost entirely black; pubescence yellowish to ochreous yellow or yellowish golden, appearing even brownish or reddish yellow on thorax in front in some ♂♂ from above, when viewed from side, the hair on thorax often paler yellowish, more brassy yellow discally, with that on occiput, thorax in front and sides in front of wings deeper yellow or ochreous, that on abdomen above, in certain lights, deeper yellow or ochreous laterally at base, becoming paler and more yellowish white towards apex, that on frons and face laterally yellowish, slightly paler and more sericeous in ♀♀, the bristly hairs on ocellar tubercle and sides of frons in ♀♀ brownish to blackish brown, darker and more blackish in ♂♂, those in mystax in ♀♀ predominantly yellowish with intermixed blackish bristles in front and laterally, finer, denser and with more numerous black ones in ♂♂, those on first antennal joints in ♂♂ entirely black, intermixed with some dark ones only above in ♀♀, the hair on head below white, that on pectoral and pleural regions pale yellowish, slightly paler than above, that on the upper parts of pleurae and in metapleural tuft being more yellowish, that on venter along sides basally very pale yellowish white, the macrochaetae, bristles in front of wings, on posterior calli and scutellum yellowish, with often a few blackish bristles on upper posterior aspect of mesopleuron in ♂♂, with the transverse bristles on abdomen above in ♂♂ black or with only a few dorsally above on tergites 2 and 3 more yellowish, with those on 2–4 in ♀♀ above yellowish, the lateral ones and those on tergite 4 to apex above being black, those towards apex of venter in ♂♂ also black, those on venter in ♀♀ mostly yellowish with only a few blackish ones apically with the spines on genital segment in ♀♀ reddish and the pubescence surrounding it orange fulvous; wings slightly tinged greyish brown or even feebly subopaquely reddish, with the costal cell, base, extreme base of marginal cell, extreme base of first posterior cell, first and second basal cells, basal half of anal cell, extreme base of axillary cell and base of alula yellowish brown to reddish brown, with the veins pale brownish to reddish brown, more reddish along first longitudinal vein and bases of the others, with the basal comb black and with pale yellowish white scaling behind it, the squamae opaquely pale yellowish or reddish brown and with a yellowish to subfulvous fringe; halteres yellowish brown, with very pale yellowish white to whitish knobs. *Head* with the interocular space in ♂♂,

at narrowest part, about as broad as front part of tubercle, a little more than 3 to 3½ times as broad as tubercle in ♀♀; antennae with joint 3 having a slight rufous tint owing to fine dark reddish or brownish hairs, broadest at about basal third or fourth, then gradually narrowed apically, the apical third more or less slender and more so in ♂♂, with the first terminal joint conical, scarcely narrower than apex of 3 and shorter than style, with joint 1 about 2–2½ times as long as 2 and with 2 longer than broad; proboscis about 6–7 or 8 mm. long. *Legs* without any distinct spines apically above on front and middle femora; front ones unarmed; middle ones with about 2–5 spines in front and 1–4 behind; hind ones with about 7–10 spines on the outer side below and with 4–10 smaller and larger spines on inner side. *Hypopygium* of ♂ (text-fig. 110, side view) with the basal parts provided with spine-like hairs on dorsum and along dorsal and front margins of inner apical processes; beaked apical joints elongate, comparatively long, with the extreme apices rapidly bent downwards; aedeagus upcurved at apex, with the process, formed on each side by the rami anteriorly, narrow, strap-like and scarcely visibly broadened apically; basal strut slightly projecting basally.



Text-fig. 110.—Side view of hypopygium of ♂ *Systoechus inordinatus* n. sp.

Holotype in the Transvaal Museum, allotype in the South African Museum and paratypes in the British Museum.

Length of body: about 10–13 mm.

Length of wing: about 10½–14 mm.

Locality.—Transvaal: Pretoria (25/4/06) (Holotype); Newington (Fenoulliet, Apr. 1912) (Allotype); Moorddrift (Swierstra, Oct. 1909); Barberton (Munro, 24/4/20), (de Beer, 4/05); Karino (Cooke, Apr. 1911) (labelled *mixtus* by Bezzi); Gravelotte (v. Dam, 4/24). No exact locality (? Pretoria) (labelled as *stylicornis* Macq.). S. Rhodesia: Salisbury (June 1913) (labelled as *mixtus* by Bezzi); Salisbury (Leeson, May 1928) (British Museum). Zululand: Mfongosi (Jones, May 1917). S.E. Karoo: Willowmore (Brauns, 3/1/17).

Easily recognised by its yellowish to ochreous yellow or golden

pubescence, the transverse rows of black bristles on abdomen and yellowish brown or reddish brown infuscation in basal part of wings, which is also found in *albidus* Lw., *nigripes* Lw., etc.

1 ♀ *S. badipennis* n. sp.

Body black; scutellum, excluding narrow black base and basal macula, brownish red; legs pale yellowish brown, the tarsi darkened brownish, with the last few joints and apical halves of claws black; pubescence (where not denuded) pale yellowish, that on occiput and thorax in front, from in front, pale yellowish, with sericeous or pale brassy sheen, that on abdomen above very pale yellowish, becoming paler towards the apex, that on head below, on pectoral and pleural regions and basal parts of venter laterally whitish, that on head below being snow white, that on upper parts of pleurae and in the metapleural tuft less distinctly white and more yellowish, the pubescence on frons, that densely on sides of face and the intermixed hairs on face and genae yellowish to pale golden, with the bristly hairs on tubercle, frons, antennal joint 1 and face (more numerously intermixed with golden ones), black, the bristles on sides in front of wings, upper part of mesopleuron, the macrochaetae, bristles on posterior calli, scutellar bristles and those transversely on abdomen above laterally on tergite 1 and the other segments black; wings distinctly infuscated brownish or mauvish, becoming much darker brownish towards base, in basal half of marginal cell, basal half of first submarginal cell, base of first posterior cell, first basal cell, extreme base of discoidal cell, second basal cell and basal halves of anal and axillary cells, alula and extreme base, with the darker basal part merging almost imperceptibly into the less darkly infuscated apical and posterior part, with the costal cell, first basal cell and base more opaquely yellowish, with the basal comb black and the scaling behind it yellowish white, the veins dark brownish, paler towards base and the first longitudinal vein being more reddish brown, the squamae opaquely yellowish, dark-bordered and with a yellowish fringe; halteres yellowish, with whitish knobs. *Head* with the interocular space a little less than 4 times as broad as ocellar tubercle; antennae with joints 1 and 2 combined subequal to 3, with 3 broadest slightly before middle, then gradually narrowed towards apex, the inner side being again broadened to about apical fourth, where there is a slight angular prominence, with the first terminal joint narrower than apex of 3, conical and much shorter

than style; proboscis about 5 mm. long. *Legs* without any apical spines above on front and middle femora; front ones unarmed; middle ones with 2 spines in front and 2 behind; hind ones with about 7 spines below on outer side and 3–6 on inner side.

Type in the Transvaal Museum.

Length of body: about 9 mm.

Length of wing: about 9 mm.

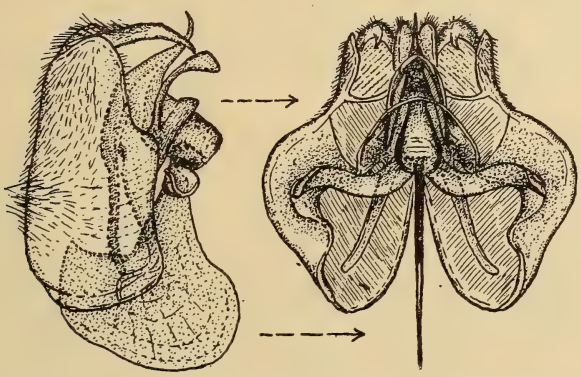
Locality.—Transvaal: Kastrol Nek (Roberts and v. Dam, Jan. 1922).

Superficially this species resembles the ♀ of *kalaharicus*, but differs in having pale yellowish pubescence above, numerous black pre-alar bristles and black transverse ones on sides of abdomen, much shorter third antennal joints, etc.

3 ♂♂ 3 ♀♀ *S. canipectus* n. sp.

Body black; scutellum, base excluded, sides of abdomen in ♂♂, more broadly on segments 2–6, the ♂-genitalia and the venter reddish; legs yellowish, with the front and middle femora to beyond middle and base of hind ones in ♂♂ black, entirely very pale brownish yellow in ♀♀, the apical parts of tarsi and apices of claws blackish; pubescence from in front or sides very pale creamy whitish or yellowish sericeous to pale yellowish sericeous in ♂♂, slightly more yellowish on disc of thorax and, in ♀♀, distinctly more yellowish, that on abdomen above slightly more straw-coloured, with a feeble yellowish sericeous tint laterally, that on body below whitish sericeous in ♂♂ and more dull whitish in ♀♀, that on upper parts of pleurae and in the metapleural tuft tinted slightly more straw-coloured yellowish in ♂♂ and more pale yellowish in ♀♀, the pubescence on frons, sides of face and hairs on face in ♀♀ pale yellowish, paler and more straw-coloured in ♂♂, the bristly hairs on ocellar tubercle, sides of frons, first antennal joints, those intermixed on sides of face, on face in front and on genae black, with some bristles above and on sides of first antennal joints in ♀♀ yellowish and the hair on head below in both sexes white, with the bristles on thorax and scutellum pale yellowish sericeous, paler in ♂♂, with the transverse rows on abdomen above being, especially laterally and apically, dark brownish black to black, those on venter being almost whitish in ♂♂, more sericeous in ♀♀; wings subopaquely greyish hyaline, showing, in certain lights, a distinct but faint brownish or mauvish tinge, with the upper basal part of marginal cell, first basal cell, the second basal cell in part,

bases of anal and axillary cells and alula distinctly infuscated pale brownish yellow, with the costal cell, extreme base and first basal cell more subopaquely yellowish, the base being more apparently yellowish, with the basal comb large, black and the scaling behind it whitish to pale yellowish white, the veins pale brownish to reddish brown, becoming more yellowish basally and more reddish brown along first longitudinal vein, with the squamae opaquely pale yellowish to yellowish white, with a dark border and a very pale whitish fringe



TEXT-FIG. 111.—Side and ventral views of hypopygium of ♂ *Systoechus canipectus* n. sp.

in ♂♂, more yellowish one in ♀♀; halteres pale brownish yellow, with very pale yellowish white knobs. *Head* with the interocular space in ♂♂, at narrowest part, about as broad as front part of tubercle or a little broader than front ocellus, about 3 times, or a little more, as broad as tubercle in ♀♀; antennae with joint 2 comparatively long, much longer than broad, with joint 1 about 2½ times as long as 2, with joint 3 comparatively slender and, in ♂♂, almost rod-like, scarcely thickened basally, in ♀♀ with the apical slender half slightly more evident, with the first terminal joint comparatively long and distinct, scarcely narrower than apex of 3 and subequal to slender style; proboscis about 4–5 mm. long. *Legs* often with a few pallid spinelets above apically on front and middle femora; front ones with or without a small spine behind; middle ones with about 2 spines in front and 1 or 2 behind; hind ones with about 5–6 spines on outer side below and about 4–6 smaller ones on inner side; front tibiae, in ♀♀ at least, with the spicules on outer upper row almost entirely pallid. *Hypopygium* of ♂ (text-fig. 111) with only fine and short hairs dorsally on basal parts, but distinct shortish bristles on inner

apical process; beaked apical joints elongate, slightly bent downwards and outwards apically; aedeagus bent upwards at apex, with the lateral process on each side of it short and slightly broadened, more clavate apically; basal strut projecting slightly basally, shaped as shown in text-fig. 111.

Types in the South African Museum.

Length of body: about 7–9 mm.

Length of wing: about 8–9½ mm.

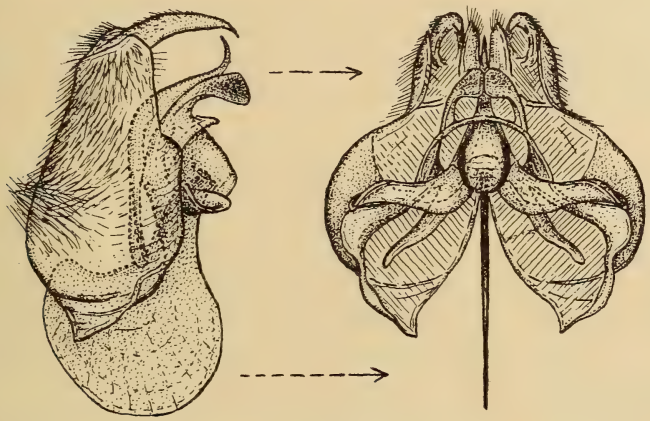
Locality.—S.W. Africa: Ovamboland; Nomtele (Barnard, Feb. 1921) (Types); Ondongua (Barnard, Feb. 1921).

This species is related to the *nigribarbus* and *rufiarticularis* series.

3 ♂♂ 1 ♀ *S. montanus* n. sp.

Body black; scutellum mostly black, but sometimes with a faint and obscure reddish tint discally, more distinct in ♀; legs with the femora almost entirely black, only the apices yellowish, the yellow slightly more extensive in the ♀, with the tibiae brownish, but also appearing dark due to dark scaling on certain faces, with the apices of hind tibiae and all the tarsi very dark, with the spines and spicules black but the spicules in outer lower row on front and middle tibiae pallid, the scaling on femora dull whitish on front and middle ones and more dull yellowish on hind ones; pubescence somewhat shaggy and longish, predominantly sericeous whitish to straw-coloured whitish, appearing more greyish from above, that towards apex of abdomen in ♂ more whitish, that on sides of thorax in ♀ in certain lights more straw-coloured yellowish with sericeous gleams, on the whole whiter above in ♂♂, that on body below whitish, more apparent in ♀, that on head below and on middle pleural parts appearing whiter in both sexes, that on sides of abdomen and on venter towards the apex in ♂ yellowish to pale ochreous yellowish, only more straw-coloured yellowish than above in ♀, with the bristly hairs on ocellar tubercle, the bristly hairs on frons in ♂, the bristles on frons in ♀, the bristly hairs on antennal joint 1, the numerous intermixed bristly hairs on face and genae and the transverse bristles on abdomen above from sides of tergite 2 and on sides of others and even encroaching on disc towards apex very dark blackish brown to black, with more numerous pale yellowish bristly hairs and depressed pubescence on head and face in ♀ than in ♂; wings distinctly tinged subopaquely mauvish or reddish brown, with the base, costal cell,

first basal cell and to a certain extent even second basal cell and the alula darker and more subopaquely brownish or reddish brown, with the basal comb black, the veins blackish brown, becoming paler and more reddish brown basally, with the squamae opaquely yellowish brown, their fringes almost sericeous whitish; halteres brownish, with yellowish knobs. *Head* with the interocular space in ♂♂ about as broad as front part of ocellar tubercle, the inner margins of eyes on each side of tubercle less than 2 times width of space, with the



Text-fig. 112.—Side and ventral views of hypopygium of ♂ *Systoechus montanus* n. sp.

space in ♀ a little more than 3 times as broad as tubercle; antennae with joint 1 only about 2½ times as long as 2, with 3 only a little longer than 1 and 2 combined, broadest near base and then gradually narrowed apically, the first terminal joint, bearing the style, short and conical; proboscis about 4–4½ mm. long, with the labella elongate and slender. *Legs* without any apical spines above on front and middle femora, the front ones unarmed; middle ones with about 1–2 spines in front and 1–2 behind; hind ones with about 6–9 spines from just before middle to apex below, these being slightly more slender in ♂♂. *Hypopygium* of ♂ (text-fig. 112) with the lateral process on each side of aedeagus short and clavate in apical part, markedly broadened; beaked apical joints slender and elongate, sunk in basally between the inner apical and outer apical parts of basal parts; basal strut more or less racket-shaped.

Types in the South African Museum.

Length of body: about 7–9 mm.

Length of wing: about 6–8 mm.

Locality.—S.-Western Cape Province: Hottentot's Holland Mts., East Side, 4000 ft. alt. (Barnard, Jan. 1933).

This species may be distinguished from *plebeius* by having the darker basal infuscation of wings much less extensive, in having black bristles on sides of abdomen in ♂, entirely dark legs, etc.

A single ♂-specimen from "Mont au Sources," collected by Mr. J. Durden, appears to represent a northern variety of this species. It differs from the ♂-holotype only in having slightly less subopaquely mauvish wings, with the darker basal part slightly paler brownish and the second basal cell apparently clearer, by having a slightly more yellowish tuft of hair in front of wing-bases on each side, in which there are also intermixed a few darkish hairs.

3 ♂♂ 2 ♀♀ *S. poweri* n. sp.

(Syn.=*nigripes* Bezzi nec Loew.)

Body, including scutellum, entirely black; legs dark blackish brown to black, only the knees being slightly yellowish, with the scaling dull greyish white and the spines yellowish brown; pubescence from above greyish in front and more whitish posteriorly in ♂♂, yellowish or sericeous yellowish to very pale brassy in ♀♀, viewed from side the pubescence is sericeous whitish to pale gleaming sericeous yellowish above in ♂♂ and pale gleaming yellowish sericeous in ♀♀, that on sides in front of wings and on propleurae pale sericeous yellowish to even golden in ♂♂ and more brassy yellowish or golden in ♀♀, that on abdomen above whitish sericeous, inclining to straw-coloured yellowish or even yellowish on the sides and whitish apically in ♂♂ and more pale brassy yellowish to pale sericeous yellowish apically in ♀♀, with the pubescence on body below straw-coloured yellowish to sericeous yellowish on pleurae and pectus and straw-coloured yellowish on venter in ♂♂, very pale sericeous whitish or yellowish in ♀♀, with that on apical part of venter slightly more yellowish in ♀♀ and the metapleural tuft whitish to pale sericeous yellowish in ♂♂, more yellowish sericeous in ♀♀, that on frons yellowish, becoming paler yellowish sericeous on sides of face, on face in front and on genae in ♀♀ and more straw-coloured in ♂♂, with the bristly hairs on ocellar tubercle, frons, first antennal joints and those intermixed on face blackish, the black ones in ♂♂ denser and finer on face, with the bristles on thorax, scutellum and transversely across hind margins of abdomen above yellowish in ♀♀, sometimes whitish in ♂♂, those on sides of tergites 2–4 in ♂♂ and 2–7 in ♀♀ dark blackish brown to

black; wings greyish hyaline, with the basal part, including base, costal cell, extreme base of first marginal cell, first and second basal cells, extreme bases of anal and axillary cells and the alula yellowish brown in ♂♂, less dark and also less evident at bases of anal and axillary cells in ♀♀, with the costal cell and extreme base in both sexes more subopaquely yellowish, the base being distinctly more yellowish, with the basal comb blackish brown and with sericeous yellowish scaling behind it, with the veins dark brownish, the squamae subopaquely pale yellowish brown and with a whitish to pale sericeous yellowish fringe in ♂♂ and slightly more creamy in ♀♀; halteres yellowish brown, with almost whitish knobs. *Head* with the interocular space in ♂♂ above, at narrowest part, only slightly narrower than posteriorly or about as broad as front part of ocellar tubercle, the space slightly more than $3\frac{1}{2}$ times as broad as tubercle in ♀♀; frons with a feeble central furrow in ♂♂; antennae with joint 1 quite 5 times as long as 2, and 1 and 2 combined scarcely shorter than 3 in ♂♂, but sometimes distinctly shorter in ♀♀, with 3 broadest just before middle and the apical part not very slender, with the first terminal element small, conical and bearing a style; proboscis about 3–4 mm. long. *Legs* without any apical spines above on front and middle femora and also with both these femora unarmed below or with only 1 spine on middle ones, with long and straight hairs near base on front ones and a few more on middle ones in ♂♂; hind femora with about 4–6 spines from just before, or about the middle to apex below; front tibiae with much smaller and often minute spicules. *Hypopygium* of ♂ (text-fig. 113) with the process on each side of aedeagus slightly broadened apically.



Text-fig. 113.—Side view of hypopygium of ♂ *Systoechus poweri* n. sp.

Types in the South African Museum.

Length of body: about 5–$7\frac{1}{2}$ mm.

Length of wing: about 6–$7\frac{1}{2}$ mm.

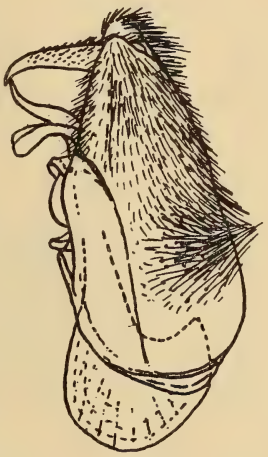
Locality.—N.W. Cape Province: Kimberley (Power, 14/3/12) (Holotype-♂ labelled *nigripes* by Bezzi). O.F.S.: Harrismith (Turner, Feb. 1927) (in British Museum); Gum Tree (Mackie, 2/32) (in Imperial Institute). Central Karoo: Murraysburg (Mus. Exp., 1931) (Allotype).

The ♂-paratype, from Gum Tree, appears to represent a slight variety which is distinctly larger (7½ mm.), with more sericeous yellowish pubescence, deeper yellowish hair in front of wings and slightly more brownish spines on the legs. From *nigripes* this species differs in that the infuscation on wings is practically confined to base, the legs are more uniformly blackened and with brownish spines, less developed spicules on front tibiae, more distinct black bristles on sides of abdomen, etc.

6 ♂♂ 8 ♀♀ *S. fumitinctus* n. sp.

Body black; face and, to a certain extent, front part of the frons in ♀♀ and to a lesser extent in ♂♂ obscure reddish; scutellum, and the sides of abdomen above in ♂♂ very broadly reddish to reddish brown, with segments 6, 7 and the genital segment in ♂♂ almost entirely reddish, only the small middle part being black; venter in ♂♂ almost entirely reddish, in ♀♀ with the last sternite discally brownish to reddish; legs dark blackish brown to black, the knees only being more dark reddish brown in some specimens, with the scaling on femora and basal parts of tibiae dull yellowish white, greyish to greyish yellow, the bases of claws yellowish brown; pubescence short on thorax of ♂♂ and with a "shorn-off" appearance, with a greyish white effect from above, that on frons being pale brownish yellow towards base and silky whitish laterally towards face in ♀♀, more densely whitish in ♂♂, with the hair on occiput and thorax in front and above dull greyish from above, but from side pelt-like and silky white, tinted slightly subgolden or yellowish on disc above in certain lights and more brownish golden in ♀♀, with the hair on sides in front of wings dull yellowish brown to golden brown and the hair on scutellum slightly yellowish, more so in ♀♀, the pubescence on abdomen above dull greyish white from above, whiter apically, more silky white in certain lights, distinctly white in ♂♂, with the sides basally more yellowish grey, that on venter sericeous white basally in ♂♂, more snow white in ♀♀, the apical half with distinct pale brownish golden to brownish yellow hair in ♂♂, duller and darker in ♀♀, the hair on head below, pleural regions above coxae, metapleural tuft and pectus in part white, that on chest in front of front coxae slightly dull brownish or yellowish, with the bristles and bristly hairs on ocellar tubercle, sides of frons, on antennal joint 1 and in mystax black, those on side of thorax in front of wings dark brownish black, but often with paler tips, the macrochaetae, bristles on posterior calli

and scutellum whitish to pale yellowish white in ♂♂, slightly more yellowish to brownish in ♀♀, with a few intermixed ones on posterior calli and some on scutellum being darker and more brownish black, the transverse rows of bristles on abdomen above brownish black, those in basal half of venter in ♀♀ paler and more whitish, the apical and lateral ones being blackish, with the apical ones in ♂♂ much paler and more brownish or yellowish, the bristles on coxae, intermixed with pale ones, brownish to blackish brown; wings slightly longer in ♀♀, distinctly tinged smoky mauvish or brownish, with the anterior part from end of costal cell obliquely across basal part of marginal cell, first basal cell and extreme base being distinctly darker and more dark brownish, almost imperceptibly demarcated from rest of wing, but more distinctly so in ♂♂, with the basal comb black and the scaling behind it pale yellowish white to whitish, with the veins blackish brown and more reddish brown along first longitudinal vein and basal parts of the others, with the squamae opaquely brownish to pale brownish and with a pale yellowish white to whitish fringe, having a distinct yellowish sheen in certain lights; halteres dark brownish, with yellowish white knobs. *Head* with the interocular space in ♂♂, at narrowest part, slightly narrower than tubercles, about 3 times, or very little more, as broad as tubercle in ♀♀; frons with the central furrow only narrowly indicated in basal half, where it is deeper in ♂♂; antennae with joints 1 and 2 combined subequal to or scarcely shorter than 3, with 3 club-shaped, thickened in basal third and broadest near base, rather rapidly narrowed apically, the apical half being slender and parallel, with the first terminal joint about as long as slender style and slightly narrower than apex of 3; with joint 1 about 2, or a little more, times as long as 2; proboscis about 4–4½ mm. long, with the minute spinules below on labium more distinctly visible towards base. *Legs* without any constant apical spines above on front and middle femora or with only 1 or 2 inconspicuous ones in some specimens; front ones with longer hairs basally in ♂♂, armed in both sexes, with about 4–5 spines below from just before middle to apex; middle ones with about 4–7 spines



Text-fig. 114.—Side view of hypopygium of ♂ *Systeochus fumitinctus* n. sp.

below in front and about 2 shorter ones behind; hind ones with about 10–14 spines below on outer side and 5–6 on inner side. *Hypopygium* of ♂ (text-fig. 114, side view) with the lateral process, on each side of aedeagus, narrow and scarcely broadened apically; inner apical processes of basal parts in neck region projecting slightly.

Types in the South African Museum.

Length of body: about 9–11 mm.

Length of wing: about 10–11 mm.

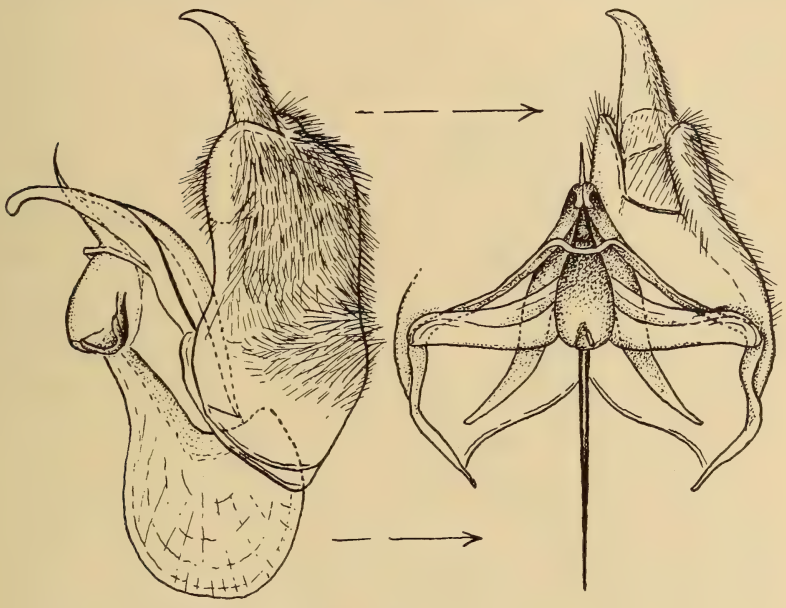
Locality.—Namaqualand: Garies Distr.; Klip Vlei (Mus. Exp., Nov. 1931); Kamieskroon (Mus. Exp., Nov. 1936); Bowesdorp (Mus. Exp., Nov. 1931) (Types). Karoo: Graaff-Reinet (Ogilvie, 24–27/10/31) (Imperial Institute).

This species, especially the ♂, resembles the ♂ of *spinithorax* Bezz. from which it differs in having the eyes slightly wider apart, third antennal joints distinctly club-shaped and thickened at base, longer and more pubescent hair on abdomen, black legs and distinctly mauvishly tinged wings. From *albipectus* n. sp. it differs in having more greyish white pubescence above, more widely separated eyes in the ♂, club-shaped third antennal joints, distinctly infuscated wings, etc. The transverse rows of black bristles on abdomen and infuscated wings at once distinguish it from species such as *albidus* Lw., *neglectus* n. sp., etc. The 2 ♀-paratypes, from Graaff-Reinet, have all the spicules on front tibiae black, whereas those in outer lower row on front ones at least on the typical form are pallid.

1 ♂ 1 ♀ *S. faustus* n. sp.

Body of ♀, including scutellum, black, with the legs very dark blackish brown or black, the apices of claws black and the scaling on legs greyish white; pubescence yellowish, with sericeous reflections, that on occiput and thorax above, in certain lights and viewed from side, pale yellowish to whitish sericeous, the sides in front of wings and on mesopleuron more brassy yellowish, that and transverse bristles on abdomen above becoming very pale almost creamy yellowish or whitish sericeous apically and on sides in certain lights, the hair on pectoral and pleural regions, metapleural tuft and venter yellowish sericeous, not paler than above, but with the hair on head below distinctly more whitish, that on frons, sides of face and in mystax pale golden or brassy yellowish, the bristly hairs on ocellar tubercle, frons, on first antennal joint above and those intermixed on face in front and sides and on genae blackish, but some on antennae

below more yellowish; wings greyish hyaline, slightly subopaquely, yellowish brown in costal cell, base, first basal cell, base of marginal cell, second basal cell, extreme bases of anal and axillary cells and the alula, with the costal cell, extreme base and first basal cell, however, distinctly more subopaquely pale yellowish brown, with the basal comb small and black, the scaling behind it pale yellowish sericeous, with the veins brownish, more reddish brown along first longitudinal



TEXT-FIG. 115.—Side view and part of ventral view of hypopygium of ♂ *Systoechus faustus* n. sp.

vein and bases of the others, the squamae opaquely yellowish brown and with a yellowish sericeous fringe, with the first posterior cell of wing feebly acute apically; halteres brownish, with pale yellowish white knobs. *Head* with the interocular space very broad relative to tubercle, nearly 4 times as broad as tubercle, with the inner margins of eyes very gradually diverging anteriorly; antennae with joints 1 and 2 combined subequal to 3, with 3 thickened basally and broadest at about basal third, gradually narrowed apically, with the first terminal joint scarcely distinguishable, conical and much shorter than short style, with joint 1 slender and quite 4 times as long as 2; proboscis about 3 mm. long. *Abdomen* with the transverse rows of bristles rather poorly developed above and not much different from

the hairs, at least on segments 2 and 3, the dorsal interruption above very broad, the bristles on 2 almost confined to sides, with the bristles stouter and more evident apically and laterally. *Legs* without any spines apically above on front and middle femora; but with rather long and slender bristly hairs towards bases of femora; front ones unarmed; middle ones with about 2 spines in front; hind ones with about 4–5 spines below from just before middle to apex. A denuded ♂-specimen from Namaqualand can at present be only referred to this species and I take it to represent the ♂ of *faustus*. From the ♀-type it differs in having the interocular space above about as broad as front part of ocellar tubercle; pubescence above apparently paler and more sericeous whitish above, the pubescence on head above and in front predominantly black, and with practically no pale hairs on face as in ♀ and, as in ♀, without any dark bristles on abdomen above or on sides; wings as in ♀ but with the base, costal cell, first basal cell and to a certain extent even second basal cell distinctly, more subopaquely yellowish brown and squamae slightly darker, even knobs of halteres more brownish, with the first posterior cell also slightly acute apically; scutellum and legs as in ♀ entirely black or dark. *Hypopygium* of ♂ (text-fig. 115).

Types in the South African Museum.

Length of body: about 6 mm.

Length of wing: about 6 mm.

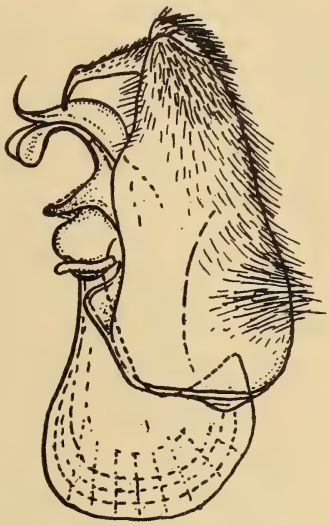
Locality.—Namaqualand: Steinkopf (Mus. Staff, March 1935) (♂); Kamieskroon (Mus. Exp., Sept. 1930) (♀).

Easily recognised by its entirely black scutellum and legs, slightly infuscated basal part of wings and yellowish pubescence. From *poweri* n. sp., *montanus* n. sp. and *argyroleucus* n. sp., which also have black legs and scutellum, it differs by having yellowish, transverse bristles on the abdomen, broader interocular space, etc.

4 ♂♂ 8 ♀♀ *S. aureus* n. sp.

Body black; scutellum (excluding black base and central basal macula), the sides of abdomen in ♂♂ and, to a certain extent, even the hind margins of posterior segments above, reddish brown to reddish; hind margins of ventral segments, especially basal ones, yellowish white and often in ♂♂ the entire venter is tinted more or less brownish or reddish brown and the exposed genitalia in ♂♂ brownish, in ♀♀ yellowish; legs yellowish, the trochanters black, with the tarsi darkened, the last few tarsal joints and apices of claws

black; general pubescence pale golden yellow, that on occiput and thorax in front more fulvous from above, that posteriorly paler from above, especially in ♂♂, when viewed from side or in front, the entire body is deep golden yellow above, that on abdomen above in ♂♂ becoming distinctly paler and more yellowish white or sericeous apically, pubescence on upper parts of pleurae and metapleural tuft scarcely paler yellowish than above, with that on lower pleural and pectoral regions and venter basally a little paler and more yellowish sericeous, that on base of venter inclining to be more whitish, that on frons and face slightly fulvous to almost orange in ♀♀, paler and more sericeous yellow in ♂♂, that on head below whitish, the bristly hairs on ocellar tubercle, sides of frons, first antennal joints, intermixed ones on sides of face and on genae yellowish brown to blackish brown in ♀♀ to black in most ♂♂, where they are also denser and more numerous on face, with those on antennae below often being more yellowish in ♀♀, with all the bristles on thorax, scutellum and transversely on abdomen entirely pale golden yellowish; wings with a distinct cinereous or slightly mauvish tinge, becoming very slightly and imperceptibly darker towards extreme base, in costal cell, first basal cell, second basal cell, bases of anal and axillary cells, basal part of marginal cell and, to a certain extent, the alula, with the costal cell, base and alula as well as the first basal cell being more subopaquely brownish yellow, with the entire wing often showing a distinct subopaque whitish tint in certain lights, with the basal comb black and the scaling behind it fulvous, the veins brown to reddish brown, becoming paler reddish brown towards base and along first longitudinal vein, with the squamae opaquely brownish yellow, having a yellowish fringe; halteres pale brownish to brownish yellow, with pale yellowish white knobs. *Head* with the interocular space in ♂♂, at narrowest part, about as broad as front part of tubercle, a little more than 3 times as broad as tubercle in ♀♀; frons with the central furrow poorly developed in ♂♂ and shallowly indicated



Text-fig. 116.—Side view of hypopygium of *Systoechus aureus* n. sp.

posteriorly, obsolescent in ♀♀; antennae with joints 1 and 2 combined shorter than 3 in ♂♂, subequal to or even slightly shorter in ♀♀, with 3 broadest near base, a little broader in ♀♀, slightly more rapidly narrowed apically in ♂♂, thus marking off a distinct slender apical part, with the first terminal joint comparatively long and distinct, only slightly narrower than apex of 3, tapering apically and slightly longer than slender style, with joint 1 about 2–3 times as long as 2; proboscis about 3–5 mm. long. *Abdomen* with the transverse rows of bristles stouter in ♀♀, very broadly interrupted above along midline in ♂♂, especially on segments 2 and 3, much more narrowly in ♀♀. *Legs* with distinct spines apically above on front and middle femora; front ones with 1–3 spines in front and 1–2 behind; middle ones with 2–4 spines in front and 1–3 behind; hind ones with about 5–8 spines below from just before middle to apex on outer side and 3–9 variable, and often minute, spines on inner side; claws not very sharply curved downwards apically and the pulvilli not or scarcely reaching apices. *Hypopygium* of ♂ (text-fig. 116, side view) with the lateral process, on each side of aedeagus, clavate or distinctly broadened apically; lateral struts comparatively broadened apically; basal strut comparatively broad, projecting considerably posteriorly, with the dorsal incision deep and subangular.

Types in the South African Museum.

Length of body: about 8½–9½ mm. (large form 11–13 mm.).

Length of wing: about 7½–9 mm. (large form 11½–13 mm.).

Locality.—Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931) (Types); Van Rhyn's Pass (Ogilvie, 11–21/11/31) (Imperial Institute).

From other species with slightly mauvish or cinereous-tinged wings, this species can be separated by the transverse rows of yellowish bristles on abdomen and the more or less uniform deep golden yellowish pubescence. Four ♀♀ from the same locality, from Van Rhyn's Pass and the Nieuwveld, are much larger than the type material, with a longer proboscis (about 5–6 mm.), with more numerous 13–14, spines on hind femora and with a tendency for the anterior and basal infuscation on the wings to be slightly more diffuse basally. As there are no structural differences these specimens probably only represent a slightly larger form.

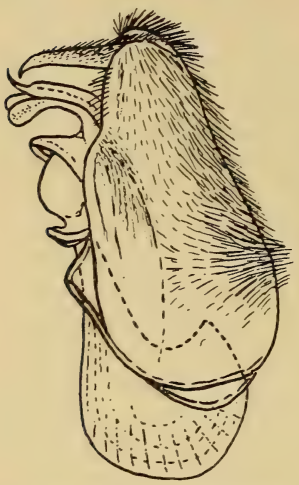
S. ventricosus Bezz.

(P. 40, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species, of which the ♀ has not yet been described, is also one of the rather large and striking species of *Systoechus*. The chief characters are:—

Body black, with the first antennal joints brownish or reddish brown to a variable extent, with the face also obscurely brownish, tending to be paler reddish brown in some specimens, with the scutellum entirely reddish, with the sides of abdomen in ♂♂ fairly broadly salmon-reddish or red and with the hind margins of the sternites in both sexes reddish; legs predominantly yellowish in both sexes, the tarsi usually more brownish and the apices of the claws black; pubescence rather shortish, that on thorax above with a shorn-off appearance and that on abdomen, even in ♀♀, not very shaggy or bushy, predominantly gleaming golden yellowish to deep golden above and below in both sexes, that towards apical part of abdomen in ♂♂ becoming paler and more sericeous yellowish to pale gleaming sericeous yellowish, especially on sides of tergites in certain lights, that on sides of thorax in front of wings and that on sides of abdomen towards base deeper yellowish and in ♂♂ even more ochreous or orange yellowish, that on apical half of venter in ♂♂ even more orange or fulvous, that on head below more whitish, that in a vertical band down middle of pleurae from below wings to pectus and that on each side of venter basally gleaming more sericeous whitish but to a lesser extent than in *scabrirostris*, with the fine pubescence on frons and face yellowish sericeous in ♀♀, more gleaming golden in ♂♂, the pubescence on face in ♂♂ apparently finer and denser and less bushy than in ♀♀, with the bristly elements on ocellar tubercle, frons and intermixed on face dark or blackish in both sexes, but dark elements on face in ♀♀ less numerous and with the bristly hairs on first antennal joints in ♂♂ also predominantly dark, with the bristles on thorax, scutellum and abdomen predominantly yellowish, but with or without some intermixed blackish brown or brownish and pale-tipped bristles towards apical part of abdomen on extreme sides of tergites in both sexes, with the post-alar bristles and tuft of pubescence usually showing up as a pale yellowish sericeous tuft; wings vitreous hyaline, with the base, costal cell, first basal cell, the base of second basal cell and to a certain extent the alula subopaquely yellowish to ochreous yellowish, with the veins brownish or yellowish brown and more yellowish basally, with the basal comb black, the

squamae opaquely yellowish and fringed with sericeous yellowish hairs, sometimes gleaming more fulvous or ochreous in certain lights; halteres yellowish, with almost whitish knobs. *Head* with the eyes above in ♂♂ distinctly flattened and narrowly separated by width of narrow front part of ocellar tubercle or by front ocellus, separated in ♀♀ by a space about 3–3½ times as broad as tubercle; antennae with joint 1 about 2½, or very little more, times as long as 2, with 3 a little longer than 1 and 2 combined, gradually narrowed apically, but more rapidly narrowed along dorsal margin, ending apically in a distinct basal element bearing a style; proboscis about 6½–8 mm., finely spinulated below. *Legs* with hairs on femora below; front femora with about 2 or 3 spines in front and 2 behind; middle ones with about 4–7 in front and 2 behind; hind femora with about 10–14 spines on outer side below, a few longish spines near base and at apex on inner side below and also some conspicuous spines on sides at apex, with some of the spines below, sometimes yellowish; front tarsal joints in ♀♀ hairy, but scarcely thicker than middle ones. *Hypopygium* of ♂ (text-fig. 117, side view) with the lateral process on each side of aedeagus clavate apically. In the British and South African Museums.



Text-fig. 117.—Side view of hypopygium of ♂ *Systoechus ventricosus* Bezz.

Length of body: about 10½–13 mm.

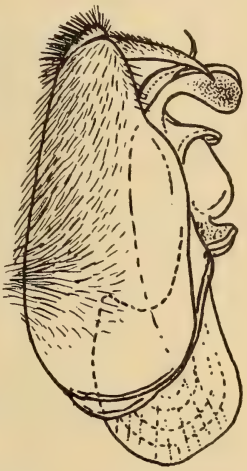
Length of wing: about 10½–12½ mm.

Locality.—South Western Cape Province.

1 ♂ *S. altivolans* n. sp.

Black; greater part of scutellum, sides of abdomen and greater part of venter reddish yellow or reddish, the hind margins of venter even paler; legs with the femora darkened or blackish brown to beyond middle, the apical parts of femora yellowish and paler than the more yellowish brown tibiae and tarsi; pubescence dense, somewhat shaggy and without a cropped-off appearance on thorax, that on frons, antennae, face and genae rather longish and dense, longer than

in the following species *affinis* and even *montanus*, that on abdomen also more shaggy and longer, that on ocellar tubercle, frons, first antennal joints, face and genae very dark blackish brown and with scarcely any pale intermixed bristly hairs on face, the depressed pubescence on sides of face sericeous yellowish, the pubescence on body above gleaming very pale sericeous yellowish, that on thorax in front with an even paler sericeous sheen in certain lights, that towards apex of abdomen scarcely paler than on rest of body above, that on head below distinctly white, that on pleurae and coxae gleaming only very slightly less yellowish than above, but in certain lights the white is more evident and the pubescence on each side at base of venter also distinctly gleaming whitish like the metapleural tuft, the pubescence on sides of abdomen from about tergite 3 with a more distinct yellowish or pale ochreous yellowish sheen, with the pubescence towards apex on venter also more ochreous, with the macrochaetal bristles, post-alar bristles, scutellar bristles and the transverse bristles on abdomen especially discally pale sericeous yellowish like the rest of pubescence above, but a few intermixed bristles on side of abdomen and towards apex blackish brown, with the hairs on femora whitish and the scaling on femora dull yellowish white; wings tinged slightly subopaquely reddish mauve, the costal cell, base, first basal cell and alula even more subopaquely yellowish, with the basal comb very dark blackish brown, the veins reddish brown, becoming darker towards apex and more reddish basally, with the discoidal cell somewhat truncate apically, with the squamae opaquely yellowish and fringed with dense creamy yellowish hairs which have an ochreous tint basally; halteres yellowish, with very pale yellowish knobs. *Head* with the eyes separated above by a space about as broad as front part of ocellar tubercle; antennae with joint 1 nearly 4 times as long as 2, with 3 only very little longer than 1 and 2 combined, broadest at about basal third, then gradually narrowed apically, ending in a small conical basal element, bearing a style; proboscis about 5 mm. long, the fine spinules below being more visible basally. *Legs* without any visible spicules or spines above apically on front



Text-fig. 118.—Side view of hypopygium of ♂ *Systoechus altivolans* n. sp.

and middle femora and without any spines below on front femora; middle ones with about 2 spines behind; hind femora with about 6 spines on outer side, of which the basal one just before middle and apical one are long and with about 4 or 5 spines on the inner side (4 near apex and a pallid one nearer base). *Hypopygium* (text-fig. 118) with the lateral process on each side of aedeagus very broad in apical part; beaked apical joints elongate and narrow and sunk in basally between the inner apical and outer apical parts of basal parts.

Type in the South African Museum.

Length of body: about 8 mm.

Length of wing: about 9 mm.

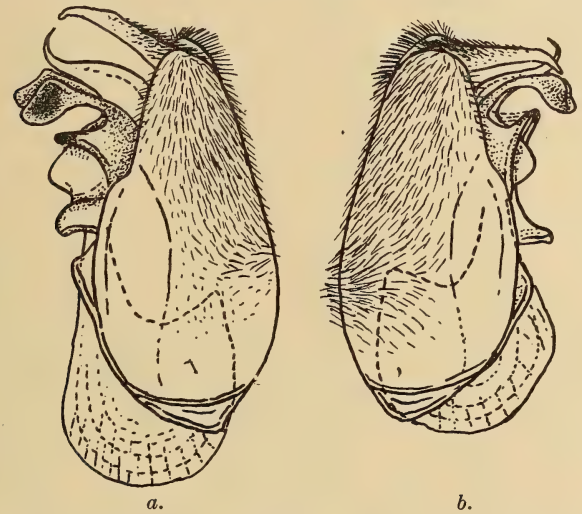
Locality.—S.-Western Karoo: Ceres Distr.; Matroosberg, 3500 ft. alt. (Lightfoot, Nov. 1917).

This species is very closely related to the following species *affinis* n. sp., from which it may, however, at once be distinguished by the longer, denser and more shaggy pubescence on face, thorax and abdomen and more reddish veins in wings. The pubescence on body below is also less contrastingly white.

6 ♂♂ 4 ♀♀ *S. affinis* n. sp.

Black; greater part of scutellum and sides of abdomen in ♂♂ reddish; legs with the femora blackened to beyond the middle in ♂♂ and even much beyond middle on hind ones, blackened basally or to about middle in ♀♀, with the tibiae and to a certain extent bases of tarsi yellowish, sometimes brownish in ♂♂, with the hind tarsi apices of hind tibiae and the apical parts of the other tarsi blackened, with the spines and spicules black, only those in outer lower row on front and middle tibiae and spines behind on middle femora yellowish, with the scaling on legs dull yellowish; pubescence appearing somewhat cropped-off on disc of thorax in ♂♂, predominantly creamy yellowish to golden yellowish above, distinctly paler on occipital and pronotal part in ♂♂, where it may even be slightly sericeous whitish, that in front of wings on each side deeper yellowish to orange yellowish, that on head below white, that along middle parts of pleurae, in lower part of metapleural tuft and densely on sides basally of venter gleaming sericeous whitish, more so in ♂♂ and contrasting with the more yellowish pubescence on body above and with the slightly more yellowish pubescence on front coxae and pectus, that on apical half of venter and sides of abdomen in ♂♂ markedly ochreous brownish or fulvous brown, showing golden gleams in

certain lights, less deeply ochreous in ♀♀, with the bristly hairs and bristles on ocellar tubercle, frons, antennal joint 1, on face and genae and the transverse bristles on abdomen from sides of tergite 2 and even encroaching on disc towards apex in both sexes very dark blackish brown to black, with the depressed pubescence on head above and the numerous intermixed bristly hairs on face in both sexes yellowish to sericeous or even golden yellowish, with the bristles on thorax, scutellum and basally above on abdomen yellowish



a. *b.*

Text-fig. 119.—(*a*) Side view of hypopygium of ♂ *Systoechus affinis* n. sp. (*b*) Side view of hypopygium of ♂ of a var. of *Systoechus affinis* n. sp.

like rest of pubescence, the bristles on venter predominantly yellowish or ochreous but with some dark or blackish ones towards apex; wings distinctly tinged subopaquely mauvish or even reddish brownish, with the base, alula, costal cell and first basal cell darker and more opaquely brownish or yellowish brown, with the basal comb large and well developed, black, with the veins dark reddish brown to dark brownish, becoming more distinctly reddish towards base, with the squamae opaquely brownish yellow to brownish and fringed with dense sericeous or gleaming orange yellowish hairs; halteres yellowish brown to pale brownish, with very pale yellowish knobs. *Head* with the interocular space in ♂♂, at narrowest part, about as broad as narrower front part of ocellar tubercle or front ocellus, with the inner margins of eyes on each side of tubercle at least or more than 2 times as long as width of space, the space in ♀♀ about 3

to nearly 4 times as broad as tubercle; antennae with joint 1 about $2\frac{1}{2}$, or a little more, times as long as 2, with joint 2 tending to be longer than broad in some specimens, with 3 tending to be subequal in length to 1 and 2 combined, gradually narrowed apically from broader base, with the first terminal joint small and conical ending in a slender style; proboscis about 5–6 mm. long, rather stoutish. *Legs* without any apical spines above on front and middle femora, the front ones unarmed below; middle ones with about 2–4 spines in front and 1 or 2 behind; hind femora with about 7–11 spines on hind ones below. *Hypopygium* of ♂ (text-fig. 119, *a*) with the lateral process on each side of aedeagus rapidly and foliately broadened in apical part, depressed and hollowed out, spoon-like above, the front edge near base, subcarinately prominent; beaked apical joints elongate and slender. The hypopygium is much like that of *montanus* and *altivolans*.

Types in the South African Museum.

Length of body: about $8\frac{1}{2}$–11 mm.

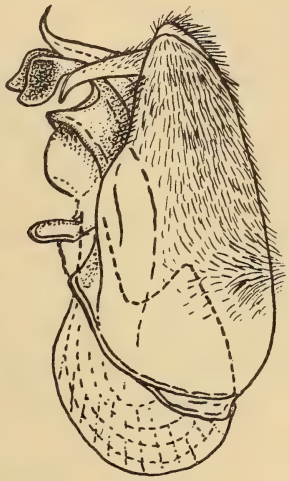
Length of wing: about 8–10 mm.

Locality.—S.-Western Cape Province: Caledon Div.; Zonder End Peak, 3600 ft. alt. (Barnard, Jan. 1919) (♂-Type); Stellenbosch (v. Heerden, 6/7/31). Western Province: Rawsonville; Du Toit's Kloof (Thorne, Apr. 1934); Great Winterhoek (Barnard, Feb. 1934). Southern Cape Province: Swellendam Distr.; Tradouw Peak, near Barrydale (Mus. Exp., Jan. 1935) (♀-Type). Karoo: Murraysburg Distr. (Thorne, March 1931). O.F.S.: Ficksburg (Ogilvie, Feb.–March, 1932) (in Imperial Institute); Smithfield (Kannemeyer, 1910).

This species appears to be a highland form and variable. Two ♂-paratypes from the O.F.S. differ from the typical form in having the pubescence above slightly paler and more creamy yellowish or sericeous yellowish, that towards apex of venter less deeply ochreous, in having the femora slightly more extensively darkened and a hypopygium as shown in text-fig. 119, *b*. The ♂ from Smithfield was labelled by Bezzi as *albidus* Lw. (cf. p. 42, Ann. S. Afr. Mus., vol. xviii). According to Loew's description (p. 190, Dipt. Faun. Südafr. i, 1860), the true *albidus* has the head yellowish below, has yellowish hairs on antennal joint 1, much fewer black bristles on abdomen and these only posteriorly and more distinctly marked off darker basal infuscation on wings. All these characters are found in an entirely different species which I have referred to *albidus* in this paper.

2 ♂♂ 4 ♀♀ *S. affinis* var. *discrepans* n.

These specimens justify the erection of a distinct variety in that they appear to show certain constant differences, and incidentally also very closely resemble *montanus*. From typical forms of *affinis* they differ in having the pubescence on body in ♂♂ and in some ♀♀ predominantly sericeous whitish, that towards apex of venter in ♂♂ much paler and not ochreous brownish, that on body below scarcely paler than that above, in 1 ♀-paratype, however, the pubescence above is definitely yellowish and more like that of typical ♀♀; legs with the femora in both sexes more extensively darkened or blackened, being entirely or almost entirely black in ♂♂ and blackened to very much beyond middle in ♀♀. From *montanus* this variety differs in having the interocular space in ♂♂ distinctly narrower, only a little broader than front ocellus, with this space distinctly longer, the inner margins on each side of tubercle being longer than in *montanus* and at least or even more than 2 times as long as space is broad; scutellum is more extensively reddish and sides of abdomen in ♂♂ reddish; wings with the basal comb distinctly larger and more developed, the squamae more yellowish and the darker basal part of wings not so deeply brownish; pubescence distinctly shorter and less shaggy, that on disc of thorax with a more cropped-off appearance. The hypopygium of ♂ as shown in text-fig. 120.



Text-fig. 120.—Side view of hypopygium of ♂ *S. affinis* var. *discrepans* n.

Types in the Imperial Institute.

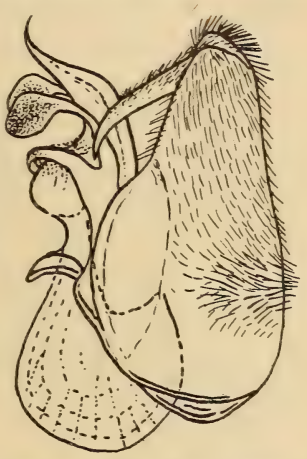
Locality.—N.W. Cape Province: Lady Grey (Nel, Jan. 1924) (Types). S. Cape Province: Caledon Distr.; Zonder End Peak, 3600 ft. alt. (Barnard, Jan. 1919).

1 ♂ 4 ♀♀ *S. subcontiguus* n. sp.

Black; scutellum, hind margins of tergites laterally very narrow in ♀♀ and very broad in ♂, and to a certain extent the narrow hind margins of apical segments above, the broadish hind margins of

sternites in both sexes, the face, genae and front part of head below in ♀♀ yellowish or reddish yellow; antennal joints 1 and 2 brownish, sometimes with 1 and 2 tending to be more yellowish in ♀♀; legs with the femora and tibiae yellowish in ♀♀, the femora darkened to beyond middle in ♂, with the tarsi becoming darker and more blackish brown apically, the basal halves of front and middle ones in both sexes more distinctly yellowish, the hind ones on the whole more brownish; pubescence with a cropped-off appearance on thorax above in ♂ and also not very long on thorax in ♀♀, that on occiput also shortish, that on abdomen longer and in ♂ more shaggy in appearance, pale sericeous, yellowish or creamy to gleaming golden yellowish above, that on thorax in one ♀, however, almost whitish, that towards apex of abdomen appearing paler in certain lights, that in front of wing-bases appearing richer yellowish in certain lights, that on head below and longitudinally across pleurae to base of venter on each side contrastingly whitish to sericeous whitish, the metapleural tuft scarcely less white, the bristly hairs and bristles on coxae distinctly more yellowish to sericeous yellowish, the dense pubescence on sides of abdomen almost ochreous yellowish, that towards apex of venter in both sexes ochreous yellowish, with the macrochaetal bristles in front of wings, the post-alar bristles, scutellar bristles and those transversely across hind margins of tergites discally in both sexes, and sometimes also on sides of 2–3 in some ♀♀ pale and yellowish like colour of pubescence above, the bristles on sides of abdomen discally also from 3 or 4 to apex dark reddish brown in ♂ to paler reddish brown, reddish or even pale reddish in ♀♀, those on venter towards apex also dark or reddish, the basal ones being more whitish, with the dense fine pubescence on sides of face, on face in front and upper parts of genae pale sericeous yellowish to ochreous yellowish in some ♀♀, especially the tuft-like hairs on face in front, with the bristly hairs on ocellar tubercle on sides of frons and the short more bristle-like ones intermixed with the pale hairs on face and genae dark blackish brown to mauvish or reddish brown, those on first antennal joints 1 below predominantly yellowish in ♀♀, but some intermixed dark ones in ♂, those above in ♂ predominantly dark and with some intermixed dark ones in ♀♀ above; wings faintly tinged subopaquely reddish mauve, with the base, costal cell, first basal cell and alula more subopaquely ochreous yellowish, but still appearing ochreous reddish in certain lights, with the basal comb blackish brown, the veins pale reddish brown to reddish, becoming even paler reddish towards base, with the squamae subopaquely or opaquely ochreous

brownish or yellowish and fringed with dense gleaming creamy yellowish to pale sericeous yellowish hairs which in certain lights even show an ochreous sheen near bases of hairs; halteres yellowish to pale yellowish brown, with almost white knobs. *Head* with the eyes in ♂ above very narrowly separated, the space about as broad as front ocellus and only a little shorter than length of ocellar tubercle, the interocular space on vertex in ♀♀ quite 3 times as broad as tubercle; antennae with joint 1 about 3 times as long as 2, with 3, including terminal elements, nearly 1½ times as long as 1 and 2 combined, broadest in basal third, then gradually narrowed apically, appearing slightly humped above before middle, ending apically in a conical basal element passing into a style; proboscis rather long, 5–7 mm. long. *Legs* with only 1 spine above on side apically on front and middle femora and with the front femora unarmed; middle ones with about 1–3 spines in front and 1 behind; hind femora with about 5–7 spines below from near base to apex. *Hypopygium* of ♂ (text-fig. 121) very similar to that of *altivolans*, *affinis* and *montanus*.



Text-fig. 121.—Side view of hypopygium of ♂ *Systoechus subcontiguus* n. sp.

Types in the South African Museum.

Length of body: about 8–9 mm.

Length of wing: about 7–9 mm.

Locality.—S.-Western Cape Province: Stellenbosch (v. Heerden, 10/8/30) (Holotype); Camps Bay, near Cape Town (Allotype). S.-Western Karoo: Ceres Distr.; Matroosberg, 3500 ft. alt. (Lightfoot, Nov. 1919). S.-Western Cape Province: Hottentot's Holland Area; Kleinmond (Wood, Jan. 1937).

Easily distinguished by the reddish brown to reddish abdominal bristles in ♀♀, reddish mauve wings, subcontiguous eyes in ♂, etc. The ♀-paratype from Kleinmond differs from the more typical ♀ in having the pubescence on front part of thorax almost white and the proboscis only about 4 mm. long. From *affinis* this species differs in having more reddish bristles on abdomen, entirely yellowish legs in ♀♀, in having more reddish tinged wings, with paler venation and narrower interocular space in ♂.

1 ♂ *S. argyropogonus* n. sp.

Black; scutellum also predominantly dark, only the hind part of disc obscurely ferruginous red; sides of abdomen obscurely reddish brown, the venter brownish, but with the hind margins of segments more distinctly reddish; legs entirely black, only the knees and basal parts of claws yellowish, with dull yellowish brown scaling and pallid or whitish spines and spicules; pubescence remarkably short, fine and pubescent, especially on occiput and thorax, viewed from side or in front, that on body above entirely gleaming silvery white, that on frons and densely on sides of face and genae entirely silvery white, without any trace of intermixed dark or black bristly hairs, with practically no hairs on face in front, only concentrated on sides, where they are almost tuft-like, that on abdomen without any dark or black bristly hairs or bristles and with the hairs across hind margins not visibly stiffer than the rest of the pubescence and all as well as bristles on posterior calli and scutellum entirely silvery white, with the hair on head below, lower parts of head behind eyes, on the prosternal, propleural and lower metapleural regions as well as that on venter more pale straw-coloured yellowish in certain lights, that on upper parts of pleurae below wings, upper parts of metapleurae and in metapleural tuft, however, silvery white; wings glassy hyaline, only the base, costal cell, first basal cell and extreme bases of anal and axillary cells and alula subopaquely pale yellowish brown, with the basal comb slightly yellowish, its spines feebly developed, with the veins brownish, becoming slightly paler towards base, with the second longitudinal vein undulating, with the squamae opaquely dull yellowish white and fringed with white hairs; halteres pale yellowish brown, with paler yellowish knobs. *Head* with the eyes in actual contact above for a distance at least equal to length of ocellar tubercle, the inner margins then diverging for a very short distance before diverging more rapidly anteriorly; frons comparatively small, but with a



TEXT-FIG. 122.—Side view of hypopygium of ♂ *Systoechus argyropogonus* n. sp.

distinct indication of a central furrow; face bluntly rounded and not prominent in front; antennae with joint 1 short, slender, a little more than 3 times as long as 2, with joint 3 slender, only slightly broader basally, the extreme apical part more slender, with the first terminal joint small and conical, continued as a slender pallid style; proboscis comparatively short, about $3\frac{1}{3}$ mm. long. *Legs* slender, with the spines and spicules comparatively poorly developed, the spines on middle and hind femora below feeble, slightly flattened, more or less adpressed to femora, with spicules on tibiae poorly developed, those on front ones vestigial or almost absent and those on middle and hind tibiae shorter, more slender and more feebly developed than in other species; middle femora with about 2 spines below and hind ones with about 9–10 longer and shorter spines below; claws slender, with the apices bent downwards and with the pulvilli reaching apices of claws. *Hypopygium* (text-fig. 122) with the beaked apical joints, viewed from above, shaped as in figure on the right, slightly prominently dilated on outer side near apex; aedeagus as in majority of species of *Systoechus*, with the process on each side of aedeagus scarcely broadened apically.

Type in the Imperial Institute.

Length of body: about 8 mm.

Length of wing: about 8 mm.

Locality.—Karoo: Graaff-Reinet (Ogilvie, 24–27/10/31).

This species is very remarkable and can be easily recognised by the fine, short, silvery white pubescence, entirely silvery white hair on face, the eyes are in actual contact above and the legs are slender and with vestigial spicules on the tibiae and poorly developed spines on the femora, all the spicules and spines being pallid and more feebly developed than in any other known species of *Systoechus* in South Africa. The eyes too are not in actual contact in any other known South African species, excepting *spinithorax* and *albipectus*, where, however, they are not really in actual contact but narrowly separated by a small front ocellus. The abdomen of this specimen is unfortunately much damaged, but not to such an extent that the specific characters distinguishing it cannot be observed.

1 ♀ *S. candidus* n. sp.

This specimen may prove to be only the ♀ of *argyropogonus*, but as it differs in certain characters, which appear to be of specific value, I prefer to refer it to a separate species. The body is entirely black,

only the scutellum is very obscurely reddish medially on the disc; legs with the femora very dark blackish brown, becoming slightly paler apically, the tibiae more yellowish and apical part of tarsi brownish, with all the spines and spicules on legs yellowish, with 3–4 slender spines on hind femora below; pubescence on body entirely gleaming silvery or sericeous whitish, that on body below scarcely duller, without any dark or blackish bristles or bristly hairs on any part of the body, without any stouter and more conspicuous bristles on frons. *Wings* as in *argyropogonus*, the halteres, however, with even paler knobs. *Head* with the interocular space a little more than 3 times as broad as ocellar tubercle; antennae with joint 1 relatively shorter than in *argyropogonus* and only a little more than 2 times as long as 2, with 3 also relatively shorter and only a little longer than 1 and 2 combined, also more rapidly broadened basally; proboscis about 2 mm. long.

Type in the South African Museum.

Length of body: about 5 mm.

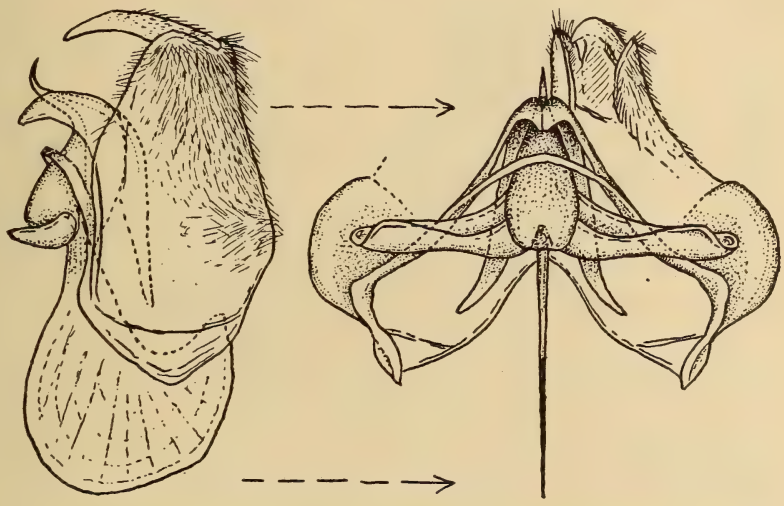
Length of wing: about 5 mm.

Locality.—N. Karoo: Venterstad Distr. (Mus. Staff, Oct. 1935).

1 ♂ 1 ♀ *salticolus* n. sp.

Black; hinder half of scutellum in both sexes and sides of abdomen in ♂ ferruginous reddish; legs with the femora very dark blackish brown in ♂, yellowish brown in ♀, the tibiae yellowish brown in both sexes, with the apical parts of hind ones blackish, the hind tarsi and apical halves of the others also black in both sexes, with the spines and spicules on legs black, only the spicules in outer lower row on front and middle tibiae yellowish; pubescence somewhat shaggy, predominantly pale sericeous yellowish above in ♀, inclining to whitish on thorax in front in ♂ and on abdomen in ♂ slightly less yellowish, distinctly more whitish than in ♀, that towards apex of abdomen even more silky whitish in ♂, with that on body below more whitish, appearing scarcely less pale than above in ♂, in ♀ appearing paler, that under head, on pectus and coxae and venter distinctly silky whitish, with the bristly hairs on ocellar tubercle, the bristles on frons in ♀ and bristly hairs on frons in ♂, the bristly hairs on antennal joint 1, and the dense bristly hairs on face and genae in both sexes predominantly black, almost entirely black in ♂, but with slightly more sericeous yellowish intermixed hairs on face in ♀ and without any trace of dark bristles on thorax or transversely

across abdomen in both sexes; wings greyish hyaline, with the base, costal cell, first basal cell and alula subopaquely pale yellowish, with the basal comb not very strongly developed and with blackish spines, with the veins very dark blackish brown, becoming even darker towards apex, with the squamae opaquely yellowish and fringed with whitish hairs; halteres brownish, with very pale yellowish knobs. *Head* with the interocular space in ♂ above, at narrowest part, about as broad as front part of ocellar tubercle, in ♀ about 3



Text-fig. 123.—Side view and greater part of ventral view of hypopygium of ♂ *Systoechus salticolus* n. sp.

times as broad as tubercle; frons with the central furrow in ♂ deep and distinct; antennae with joint 1 rather shortish, only a little more than 2 times as long as 2, with 3 only gradually narrowed apically, the first terminal joint short, conical, as broad as apex of 3 and a little shorter than slender style; proboscis about 3½–4 mm. long, with the spicules or serrations more visible towards base below. *Hypopygium* of ♂ (text-fig. 123).

Types in the South African Museum.

Length of body: about 7–8 mm.

Length of wing: about 7½–8 mm.

Locality.—Nieuwveld Karoo: Escarpment; Teekloof in Fraserburg Distr. (Mus. Staff, Nov. 1935).

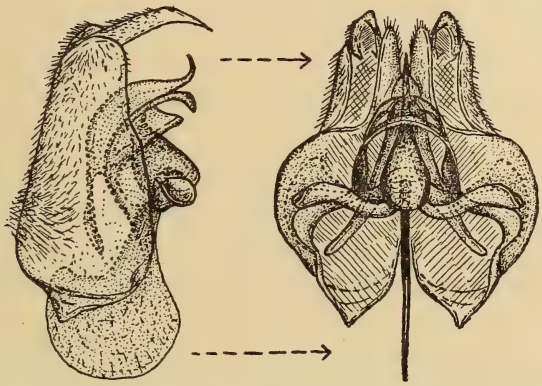
S. marshalli Par.

(Paramonow, p. 238, Trav. Mus. Zool. Kiev. No. 10, 1931.)

In the South African Museum there are 2 ♂♂ from the same batch of ♂♂ and ♀♀ which Dr. K. H. Key forwarded to the Imperial Institute and which Paramonow described in 1931. A fuller description of the ♂♂ is as follows:—

Body black; first and second antennal joints obscure dark reddish brown, the upper surfaces, however, being more or less darkened; scutellum, the black base excluded, reddish; extreme sides of last few segments of abdomen in ♂♂ also reddish; venter brownish to dark brownish, the hind margins of the segments being paler and more yellowish or pallid and the exposed genitalia pale brownish; legs yellowish, with the extreme bases of front femora often slightly darkened, the tarsi more or less darkened and the last few joints being dark brownish to blackish; general pubescence very pale yellowish, with sericeous reflections, the sides and apex of abdomen above appearing more whitish sericeous, when viewed from the side, the hair on occiput and thorax above very pale creamy yellow to whitish sericeous, that on occiput in certain lights being more distinctly yellowish, with the hair in front of wings and on propleurae also more distinctly and deeper yellowish, that on abdomen above pale creamy yellowish sericeous, nearly whitish sericeous towards apex with, however, a deeper yellow to pale ochreous tint laterally, the hair on pectoral and pleural regions paler than above, inclining to whitish sericeous, the metapleural tuft almost whitish sericeous and the venter pale yellowish white or sericeous but distinctly more yellowish to slightly pale ochreous yellow apically, the pubescence on frons, sides of face and face pale yellowish to yellowish sericeous, with the bristly hairs on ocellar tubercle, frons, first antennal joints, sides of face, genae and intermixed on face in front black, with the hairs on head below white, the bristles on thorax, scutellum and on abdomen pale creamy whitish or pale yellowish sericeous, with a very few darker and more brownish or blackish ones among the hair towards apex laterally below; wings comparatively slender, vitreous hyaline, with the costal cell, first basal cell, extreme base and alula more or less subopaquely very pale yellowish white, with the basal comb small and black and the scaling behind it whitish to pale yellowish sericeous, with the veins pale yellowish brown to pale brownish but paler towards base, the squamae opaquely very pale yellowish white and with dark borders and a very pale creamy yellowish or

yellow sericeous fringe; halteres yellowish, with almost white knobs. *Head* with the interocular space in ♂, at narrowest part, about as broad as narrow front part of ocellar tubercle, or only a little broader than front ocellus; antennae with joints 1 and 2 combined subequal to 3, with 3 thickened in basal two-thirds or basal half, gradually narrowed apically, broadest at about basal third and the apical part not very slender, with the first terminal joint small, conical and much shorter than the very slender style, with antennal joint 1 not quite 4 times



Text-fig. 124.—Side and ventral views of hypopygium of ♂ *Systoechus marshalli* Par.

as long as 2; proboscis about 3 mm. long. *Abdomen* with the transverse rows of bristles very slender and hair-like, very broadly interrupted medially above on segments 2 and 3. *Legs* with fairly dense and long hairs basally on femora, without any apical spines above on front and middle femora; front ones unarmed; middle ones with about 1–3 spines in front and 1–2 behind; hind ones with about 5–7 spines below on the outer side and about 2–3 small ones on inner side. *Hypopygium* (text-fig. 124) very similar to that of *mixtus* (cf. text-figs. 140 and 141) only much smaller; lateral process, on each side of aedeagus very much shorter and narrower, less broadened apically, scarcely clavate and basal strut is much narrower. The ♀, according to Paramonow, has distinct black bristles across abdominal segments 4 to apex, and on sides of 2 and 3 and seems to be very near *mixtus*.

Length of body: about 6½–8 mm.

Length of wing: about 6–7 mm.

Locality.—Western Cape Province: Newlands; Cape Town (Key, Nov. 1930).

The maggots of this species are parasitic in the egg-pods of the Acridiid Locust, *Acrotylus deustus* Thb., a member of the *Oedipodinae*, which is common in the Western Province and which deposits its egg-packets in sandy places. Both these specimens of *Systoechus* were hatched from egg-packets of this locust, which Dr. K. Key collected at Newlands. Both this species and the following may even be considered as varieties of *mixtus* Wied., from which this species differs in being considerably smaller, in having dark reddish brown first and second antennal joints, reddish to extreme sides of abdomen apically, brownish and not black venter, comparatively narrower interocular space, comparatively shorter and third antennal joints apically less slender, shorter proboscis and unarmed front femora.

1 ♂ 1 ♀ *S. exiguus* n. sp.

(Syn. = *ctenopterus* Bezz. nec Mikan.)

The ♂ and ♀, which I take to belong to the same species, are so close to *mixtus* and *marshalli* that they may more suitably be compared with these.

Body black; scutellum and extreme sides of last few abdominal segments in ♂ reddish; joints 1 and 2 of antennae more distinctly reddish, only slightly darker in ♂, with joint 3 more reddish brown and not black; face and head below distinctly more reddish brown and less black; venter in ♂ also more or less brownish and with more yellowish hind margins; legs also yellowish; general pubescence in ♂ paler, less pale yellowish or creamy yellowish, but more whitish sericeous and, in certain lights, more whitish on occiput and thorax, with the apical part of abdomen almost white, in the ♀ the pubescence is distinctly more brassy or pale golden yellowish, the abdomen above also more uniformly yellowish and with brassy reflections, the hair on pectoral and pleural regions as in *marshalli*, that on the sides in front of wings and propleural parts in ♂ less yellowish and on venter in ♂ more whitish, more yellowish again in ♀ and posterior lateral parts in ♀ even more ochreous, the pubescence on frons and face slightly more yellowish, the bristly hairs on face in front with a distinctly pale golden or brassy tint in ♀, the bristly hairs on tubercle, frons, antennal joint 1 and those intermixed on face dark brownish or purplish, even with a reddish tint in ♂ and not black, paler and more reddish or fulvous in ♀, with the transverse rows of bristles on abdomen above with more dark brownish or reddish brown ones on extreme sides of last few segments in ♂ than in *marshalli*, with

stoutish dark brownish or blackish brown bristles laterally from segment 3 to apex in ♀ and the dorsal interruption distinctly narrower than in small specimens of *mixtus*. *Head* with the interocular space in ♂, at narrowest part, about as broad as front part of tubercle, a little more than 3 times as broad as tubercle in ♀; eyes with the upper facets in ♂ slightly less coarse than in *marshalli*; face comparatively less broad; antennae much shorter and joint 1 much shorter, only about 3, or slightly more, times as long as joint 2, with 3 also relatively shorter, thickened basally and narrowed to apex; proboscis very slightly shorter, about 2½–3 mm. long. *Wings* also vitreous-hyaline, the basal comb apparently even less developed, with the veins much paler and yellowish, not brownish or dark brown as in *marshalli*, with a tendency for discoidal cell to be more broadly truncate apically, the apical cross vein being distinctly longer than discal cross vein. *Legs* without any apical spines above on front and middle femora; front ones unarmed; middle ones with 2–3 spines in front and 1–2 behind; hind ones with about 5–6 spines below. *Hypopygium* very similar to that of *mixtus* (cf. text-figs. 140 and 141) and that of *marshalli*, with the lateral process, on each side of aedeagus, however, distinctly narrower than in *mixtus* and only a little broadened apically.

Types in the South African Museum.

Length of body: about 6–7 mm.

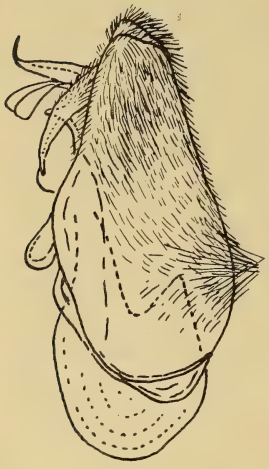
Length of wing: about 5–6½ mm.

Locality.—Western Cape Province: Stellenbosch (Peringuey, 11/87).

The allotype-♀ was labelled and referred to by Bezzi (p. 44, Ann. S. Afr. Mus., vol. xviii) as *ctenopterus* Mik. Compared with a ♂ and ♀ of *S. ctenopterus* Mik., determined by Dr. E. Austen and kindly sent to me by Dr. Edwards of the British Museum, it is evident that this Palaearctic species is quite different from the South African insect so named. The ♀ of *ctenopterus* differs from the latter chiefly in having distinctly mauvishly tinged wings, with darker veins, a dark or entirely black scutellum, darker legs of which the femora are almost entirely very dark brownish or black and not yellowish, in having entirely dark or black antennae, darker and more blackish bristly hairs on the frons and face and a distinctly narrower interocular space in relation to tubercle, and much less than 3½ times as broad as tubercle. Apart from Bezzi's determinations, no Palaearctic species of *Bombyliidae* have been found in the South African material by me, and there is no reason to believe that Palaearctic forms occur in Africa south of the Sahara.

6 ♂♂ 28 ♀♀ *S. anthophilus* n. sp.

Body black; scutellum, excluding black base and hind borders laterally, reddish brown; exposed genitalia of ♂♂ brownish; legs pale yellowish brown to reddish brown, the tarsi blackish brown and apical parts of claws black; pubescence longish and not with a shorn-off appearance on thorax, from in front, dull whitish sericeous, with a faint pale yellowish sericeous sheen in certain lights in ♀♀, more whitish in ♂♂, hair on occiput and sides of thorax in front of wings in ♀♀ distinctly tinted pale yellowish, that on abdomen above more silky white in ♂♂, pale yellowish white or creamy yellowish in ♀♀ and almost pure white apically in ♂♂, the pubescence on frons and greater part of face almost yellowish or subgolden in ♀♀, slightly paler and more yellowish white in ♂♂, the bristles and bristly hairs on ocellar tubercle, sides of frons, on first antennal joints above and the bristly ones intermixed on sides of face and genae brownish black to black, much denser on face laterally in ♂♂, with the yellowish hair on face in front and round the buccal rim above more predominant in ♀♀, the hair on head below, pleural and pectoral regions almost like that above, only slightly more whitish on head below and often with a very pale yellowish white tint along upper parts of pleurae, that on venter in ♀♀ distinctly more yellowish white laterally, almost entirely white in ♂♂ and only the apical part being slightly tinted pale yellowish white, the bristles on thorax and scutellum whitish, those transversely on abdomen in ♂♂ entirely whitish discally and laterally, in ♀♀ often with some long, darker blackish brown to blackish ones intermixed on sides towards apex and also apically below; wings hyaline, with the costal cell, extreme base and first basal cell subopaquely pale yellowish white, with the basal comb blackish brown and the scaling behind it whitish to pale yellowish white, the veins dark brownish to blackish brown, paler and more reddish or yellowish brown basally and along first longitudinal vein, with the squamae opaquely yellowish white and with a whitish silky fringe; halteres pallid or yellowish, with almost white knobs. *Head* with



TEXT-FIG. 125.—Side view of hypopygium of ♂ *Systoechus anthophilus* n. sp.

the interocular space in ♂♂, at narrowest part, narrower than tubercle posteriorly, about as broad as front part of tubercle, 3 to a little more than 3 times as broad as tubercle in ♀♀; antennae with joints 1 and 2 combined subequal to 3 (terminal joints excluded), often slightly longer in some ♀♀, with 3 more or less club-shaped, broadest near base, comparatively more rapidly broadened there in ♀♀, with the first terminal joint conical, slightly narrower than apex of 3, slightly shorter than the very slender and straight style; face comparatively tumid, slightly more so in ♂♂, with the mystax comparatively dense; proboscis straight, about 3–5 mm. long. *Abdomen* with the transverse rows of bristles more slender and hair-like in ♂♂, stouter laterally in ♀♀ and widely interrupted above medially in both sexes, but more in ♂♂. *Legs* without any apical spines above on front and middle femora; front ones unarmed below; middle ones with about 1–2 spines in front and often 2–3 pallid spines behind; hind ones with about 5–6 spines below from just before middle to apex. *Hypopygium* of ♂ (text-fig. 125, side view) with the beaked apical joints comparatively long; basal parts fairly pubescent; lateral process, on each side of aedeagus, comparatively broader and the apices slightly less truncate than is shown in text figure.

Types in the South African Museum.

Length of body: about 7–9 mm.

Length of wing: about 7–9 mm.

Locality.—Namaqualand: Garies Distr.; Klip Vlei (Mus. Exp., Nov. 1931) (Types); Bowesdorp (Mus. Exp., Nov. 1931). West Cape Province: Olifant's River Valley (Mus. Exp., Oct. to Nov. 1931).

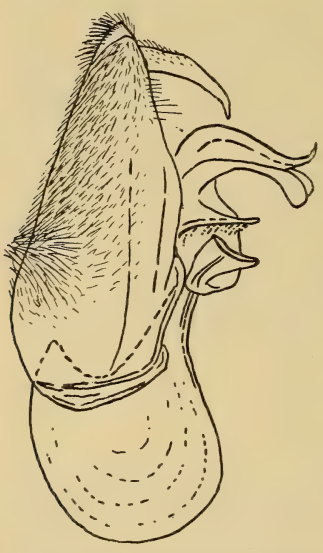
This species may be mistaken for a small specimen of *mixtus* or varieties of it, from both of which it differs in being constantly and uniformly smaller, with paler pubescence, entire absence of even 1 or 2 black bristles on sides of abdomen in ♂♂, less yellowish hair on frons in ♂♂, distinctly more club-shaped third antennal joints and the more slender legs.

16 ♂♂ 30 ♀♀ *S. xerophilus* n. sp.

(Syn. = *albidus* Munro nec Lw.)

Body entirely black; scutellum, excluding a variable black base and hind border, more or less brick red; hind margins of ventral segments often narrowly pallid and the exposed ♂-genitalia often brownish to dark brownish; legs pale brownish yellow, with the

front and middle femora in ♂♂ black to beyond middle and the hind ones darkened only at extreme base, entirely pale brownish yellow or only slightly darkened basally in ♀♀, with the apices of hind tibiae and front faces of the other tibiae dark brownish to blackish brown, the tarsi blackish brown, becoming darker apically, with the spines on hind femora below usually with a few pallid or whitish ones in basal half or often with all the spines pallid in ♀♀ and with only 1 or 2 or even none pallid in ♂♂; general pubescence somewhat long and shaggy, with a brownish grey tint on thorax, slightly paler in ♂♂ and often more creamy yellowish in ♀♀, that on abdomen above creamy yellowish or straw-coloured white to whitish, becoming more white towards apex, when viewed from in front or sides, the entire pubescence and bristles soft dull straw-coloured whitish or yellowish, greyish white to very pale yellowish sericeous, becoming more whitish on occiput in some specimens and distinctly more whitish towards apex of abdomen in ♂♂, which in ♀♀ is often more pale yellowish sericeous and only apex of venter in ♂♂ often with a more yellowish tint, that on sides in front of wings often with a slightly more yellowish sheen, the hair on head below, pectoral and pleural regions and on venter duller but whiter than on body above, slightly more so in ♀♀, with the upper pleural parts in some ♂♂ having a feeble yellowish tint in certain lights, the pubescence on frons and face whitish to pale yellowish white in ♂♂, slightly more yellowish in ♀♀, with the bristly hairs on ocellar tubercle, frons, first antennal joints, face and genae black in ♂♂, darker blackish brown to black in ♀♀, the mystax in ♂♂ being almost entirely black and the pale yellowish white hairs above buccal rim, distinct in ♀♀, being scarcely evident in ♂♂, the intermixed black bristles in ♀♀ being also less dense, with the transverse rows of bristles on abdomen and bristles on thorax entirely whitish; wings hyaline, but with a distinct, though faint, whitish tinge or lustre in certain lights, with the base, costal cell and first basal cell sub-



TEXT-FIG. 126.—Side view of hypopygium of ♂ *Systoechus xerophilus* n. sp.

opaquely whitish, pale yellowish white to pale yellowish, the extreme base being more distinctly yellowish, with the veins dark brownish, often becoming paler towards base, with the basal comb black and the scaling behind it pale yellowish white to yellowish, the squamae opaquely whitish to pale yellowish and with a white fringe, which in certain lights has a feeble yellowish sericeous sheen; halteres yellowish to pale yellowish brown, with whitish or ivory whitish knobs. *Head* with the interocular space in ♂♂, at narrowest part, scarcely narrower than front part of tubercle, about 3 to a little more than 3 times as broad as tubercle in ♀♀; antennae with joint 1 about 3, or a little more, times as long as 2, with joint 3 about 1½ times or slightly less as long as 1 and 2 combined, broadest in basal fourth, gradually narrowed towards apex, there being no distinctly demarcated slender apical part, with the first terminal joint about as broad as apex of 3, subequal to or slightly shorter than slender style; proboscis fairly long, about 6–7 mm. long. *Abdomen* with the transverse rows of bristles in ♂♂ fine and slender, scarcely distinguishable from the other hairs, distinctly stouter and more evident in ♀♀, with the dorsal interruption very wide on segments 2 and 3 in ♂♂, much narrower in ♀♀. *Legs* without any apical spines above on front and middle femora; front ones unarmed; middle ones with about 1–3 spines in front below and 1–2 behind; hind ones with about 5–8 spines below on outer side and often with a few pallid ones on inner apical aspect; claws rather rapidly curved downwards apically. *Hypopygium* of ♂ (text-fig. 126, side view) showing the genitalia a little displaced outwards; lateral process on each side of aedeagus slightly broadened apically; basal strut well developed and lateral struts also distinctly broadened apically.

Types in the South African Museum, paratypes in the University of Stellenbosch and in the Agricultural Department at Pretoria.

Length of body: about 8–10 mm.

Length of wing: about 8½–10 mm.

Locality.—Karoo: Prince Albert Distr.; Vogelfontein (Hesse, Mar.–Apr. 1929) (Types) and (Potgieter, 1–9/4/29); Fraserburg Rd. (Mally, 17/4/25). S.W. Africa: Kaokoveld; Kaross and Kamanyab (Mus. Exp., Feb.–Mar. 1925); Kaoko Otavi (Mus. Exp., Mar. 1926).

This species resembles forms of *mixtus* from which it may, however, be easily distinguished by the slightly shorter, less shiny and sericeous and also slightly paler straw-coloured pubescence, the predominantly black mystax in the ♂♂, longer proboscis, blackened femora to beyond middle in ♂♂, entirely whitish transverse bristles on abdomen

and the basal spines on hind femora, especially in ♀♀, always with some pallid ones.

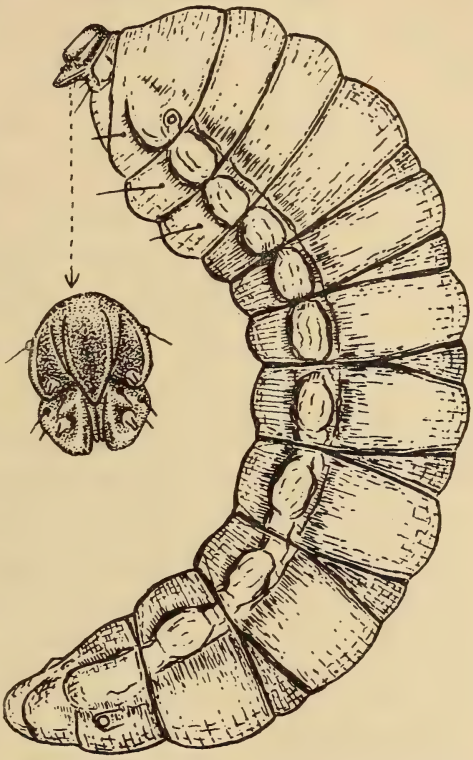
This species is of economic importance in that its larval stages feed on and destroy the eggs in the egg-packets or pods of *Locustana pardalina* Walk., the South African Brown or Trek Locust. Several of the paratypes were hatched from such larvae by Prof. J. Potgieter of the University of Stellenbosch from material collected at Vogelfontein in the Prince Albert District, where the types and other paratypes were also independently collected by me by sweeping a patch of lucerne in bloom. The hatched specimens, together with another species (♂-specimen) which I have described below as *S. acridophagus* n. sp., were unfortunately incorrectly identified by the Agricultural Department as a single species, namely *albidus* Lw. (*See* pp. 5 and 32 in "A Contribution to the Biology of the Brown Swarm Locust," Science Bulletin No. 82, Department of Agriculture, Pretoria, and Stellenbosch and Elsenburg College of Agr. Univ. Stellenb. Scien. Bull. No. 6, 1929, by J. T. Potgieter.)

A careful comparison with the description of Loew's ♂-specimen of *albidus* (p. 190, Dipt. Faun. Südafr., i, 1860) as well as with ♂♂ and ♀♀ in the Transvaal and South African Museums, so determined by me (*see* under *albidus* in this paper), shows that these specimens cannot be referred to *albidus*. *S. albidus* has a few black transverse bristles laterally on the abdomen in the ♂♂ and more numerous ones in the ♀♀; pubescence on posterior part of venter is fulvous or ochreous yellow; femora are blackened in ♂♂; face and head below pallid or yellowish brown in both sexes; wings more distinctively infuscated in basal part, which "biz zum Ende der Wurzelzellen und am Vonderrande hin bis zum Ende der ersten Längsader mit rostbrauner Färbung" (i.e. costal cell, base and first and second basal cells yellowish brown to brownish). All these characters are not present in the ♂♂ and ♀♀ of this new species.

Judging from the type and paratype localities, this species is fairly widely distributed over the dry and arid parts of the Gouph-Karoo, S.W. Africa and into the Kaokoveld; this range probably more or less coinciding with the geographical range of the solitary and swarm phases of *Locustana pardalina* itself. The paratypes from the Kaokoveld were collected by the Museum Staff at the same time that swarms of hoppers and adults of *L. pardalina* were encountered at Kamanyab and Kaross in the Kaokoveld. It is also probable that this species of *Systoechus* is not specifically confined to one host and that it may attack the egg-packets of other *Oedipodinae* as well.

Potgieter has kindly placed some preserved larvae and pupae at my disposal, which, together with some other pupae from the Agricultural Department at Pretoria, I am describing and figuring below.

Larva of *S. xerophilus* n. sp. (text-fig. 127 and also fig. 6, *c*, Potgieter, loc. cit.).



TEXT-FIG. 127.—Side view and front view of head of larva of *Systoechus xerophilus* n. sp.

These larvae are distinctly not the triungulin-stages, which have been observed to hatch from Bombyliid-eggs by authors such as Verhoeff, Riley, Shelford, Nielsen and Portchinsky. They are the transformed eruciform stages which are found feeding inside the egg-pods and which, according to the observations of Potgieter, are also found free in the soil near destroyed egg-packets. Dry and spirit specimens are dull creamy white to very pale yellowish in colour, and dried specimens often show a brownish oleaceous colour across the junctions between segments and the chitinous cephalic capsule is pale brownish to dark brown. *Body* with the dorsum more convexly arched, with the broadest part more or less between meso and metathoracic segments and first abdominal segment, more often across the first abdominal segment; 13 distinct segments present, including the head and terminal medial lobe of telson-like segment at end; no pseudopods or leg-prominences present on the thoracic segments, but these 3 sternites slightly more tumid and probably in life much more so; abdominal tergites and sternites without any visible hairs or bristles, the extreme sides between tergites and sternites, however, fold-like and tumid and also more or less divided into slightly tumid promin-

ences corresponding to the segments except on last segment, with the sternites on the sides also showing a more distinct and deeper longitudinal groove-like depression separating them from the lateral prominences than that separating the tergites. *Cephalic segment* (text-fig. 127 to left) comparatively small, retractile into thoracic part, when extruded narrower than narrowest part of body, composed of a basal and an apical part; basal part not differing from first thoracic segment, its sides subcarinate and with a slight longitudinal ridge on each side ventrally bearing a slightly forwardly directed bristle more anteriorly and often a shorter one more anteriorly between it and the side; apical part highly chitinised, brownish or dark brown, composed of upper and lower parts; the upper trilobed structure, typical of *Systoechus*-species (enlarged towards left of text-fig. 127) having a distinctly raised medial part, which is also more acute apically and with the upper surface slightly more depressed, with a small papilla bearing a very short and slender cone or joint nearer apex along inner anterior margin of each lateral lobe and also a small forwardly directed bristle on each lobe laterally at about the middle and also another near base; the lower part composed of a mandibulate triangular lobe on each side, each of which is bluntly pointed but rounded apically, having a basal depression bearing a small inner and an outer setiferous papilla and a slight medial depression in which is situated a papillate base from which arises a short cone or joint (see text-fig.), each lobe also with a small blade-like or pointed plate fused basally to their inner sides and free or stylet-like apically. *Thoracic segments* slightly more humped dorsally, the metathorax being the broadest; anterior segment the longest, with a distinct spiracular opening on each side just in front of posterior lateral angles at base, often with a longitudinal row of 3 or 4 small depressions above on each side; small setae or bristles arranged as shown in figure. *Abdominal segments* with the first one usually the broadest and often with 4 and 5 narrower again than 6 and 7, which are also longer; segment 8 telson-like, often broad, its posterior lateral angles bluntly rounded above, more or less divided into 4 divisions, a medial terminal lobe which is bluntly trilobed, a medial basal part and a lateral part on each side indistinctly marked off from medial basal part but more distinctly from terminal lobe, with a spiracular opening on each side about midway between base and posterior margin; sternites more or less transversely wrinkled and the integument slightly subshagreened, without any setae laterally and with sternite 8 slightly more raised than the anal segment.

The advanced larvae, judging from preserved specimens, which Potgieter found in the soil in the neighbourhood of empty egg-packets, are often markedly more dorsoventrally compressed and broadened, with the lateral prominences more conspicuous, thus bearing a marked resemblance to *Isopod-Crustacea* such as "Wood-lice." This stage is also able to flex the posterior part of its body under the front part.

Length of mature larva (dried and spirit material) about 8–12 mm.

Pupal Case pale yellowish translucent and does not differ much structurally from that of *S. acridophagus* n. sp. (cf. with description of pupa and text-fig. 129, below). The slight differences being :—*Head* with the cephalic spines on the whole slightly more slender, thus apparently longer; the anterior frontal spines slightly nearer together and the subangular or tubercular prominence on the outer edge at base comparatively less developed and often inconspicuous; proboscis with the confluent basal spines slightly more slender and more constantly with 3 papillate or tubercular prominences in a row in basal half on labral part. Abdominal segments with the average number of bristles on each side of middle as follows: 1=4, 2=6, 3=7, 4=7, 5=7 or 8, 6=7–8, 7=7 and 8=8–9; segment 8 thus with more conspicuous and longer bristles laterally than in *acridophagus* and also distinctly less tumid and prominent laterally; lateral prominences with 5–6 bristles between tergites and sternites 1–4 and with 4–6 on 5 to 7, these bristles, especially basal ones, being slightly shorter than in the other species; sternites 2–6 with 1–5 bristles on each side and fewer towards base and 2–4 on 7, with a row of 8–12 bristles (some of which are often reduced to short spines) on eighth sternite in ♂ and none in ♀. Segment 9 (text-fig. 130, *a*) differs from that of *acridophagus* (cf. text-fig. 130, *b*) in having the 2 apical spines directed more downwards or horizontally backwards and not distinctly horizontally upwards, in having an arcuate row of 4 to 6 spine-like prominences above and not 2 only as in *acridophagus* and ventrally in ♀ with at least 1–2 distinct transverse wrinkles before bases of spines. Ventral part of terminal segment in ♂-pupal cases is more prominently convex or tumid than in ♀♀; this prominence being transversely wrinkled and ending apically at bases of terminal spines, on each side, in a tumid prominence, each with a papillate or mammillate little prominence.

Length of dried cases: about 12–14 mm.

On pages 32–33 (Potgieter, loc. cit. above), Potgieter makes some interesting remarks on the habits and ecology of the larval and pupal

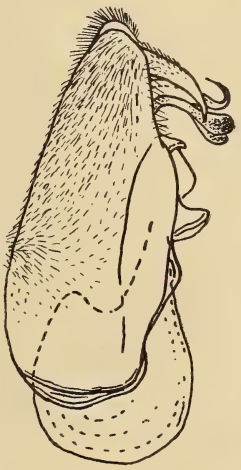
stages, which are probably applicable to both *xerophilus* and *acridophagus*. From these observations, it appears that any one egg-packet of the locust may be heavily infested (1–8 larvae) and that many egg-packets are thus completely destroyed. A square foot of ground containing 20 egg-pods had 39 larvae, and one square yard of ground containing over 100 packets had a total of 1143 larvae. Potgieter further states that these larvae are capable of active migration even in hard soil and that the advanced stage even leaves the empty egg-packet (about 3 inches under the surface) to penetrate the hard ground for about 8 inches, there to form a definite cell in the soil, where it is capable of surviving for very long periods, as long as four years in this dry sand or soil. Pupation seems to depend on the amount of moisture and the temperature, thus directly on the rainfall and climatic factors supervening at the time. The pupal stage itself, he states, is short and more definite, being 7–9 days in an incubator and 14–23 days under natural summer conditions. The pupal stage apparently is not quiescent and, as soon as this stage is initiated, the pupa becomes very active, wriggling and actively forcing its way through the soil in order to reach the surface of the ground, where the imago emerges. It is thus apparent that pupation does not take place in the empty egg-packets of the locusts as has been maintained in the case of other species of *Systoechus*, which parasitise migratory locusts in other parts of the world. The integumentary structures of the pupa, such as terminal prong-like spines, tergal rows of dentate spines and bristles, are thus adaptive structures, which facilitate its active movements in soil.

1 ♂ *S. acridophagus* n. sp.

(Syn.=*albidus* Munro nec Lw.; fig. 6, *a*, Science Bull. No. 82, Dept. Agr. Pretoria or Science Bull. No. 6, Stell.-Elsenb. Coll., 1929.)

Body black; scutellum ferruginous red; extreme sides of abdomen and especially segment 2 laterally reddish, the exposed hypopygial part partly pale yellowish brown; legs pale ochreous yellow, with pale yellowish white scaling, the bases of femora blackened, with the apices of hind tibiae and the hind tarsi brownish, the last 2 joints of all the tarsi black; general pubescence very pale straw-coloured yellow and with sericeous to very pale brassy reflections, the hair on thorax in front more whitish (from in front), that on disc of thorax slightly tinted more yellowish and with very pale brassy reflections,

with the dense pubescence on abdomen above distinctly pale straw-coloured yellowish, the reflections being markedly sericeous, that towards apex distinctly whitish, the pubescence on body below distinctly paler and more whitish than above, the fine bristly hairs on ocellar tubercle, frons, first antennal joints and those intermixed laterally on face and genae black, the dense pubescence round buccal rim and face in front distinctly yellowish, the bristles on thorax and scutellum very pale straw-coloured whitish or yellowish, with the transverse rows of stout bristles on abdomen all very dark blackish brown to black, those laterally and towards apex with more reddish brown or paler tips, the rows broadly interrupted on segments 2 and 3 above and on 2 at least more than a third as wide as the segment; wings hyaline, with a faint subopaque whitish tint in certain lights, with the costal cell, first basal cell and base duller subopaquely whitish, with the basal comb black, the veins dark brownish, becoming slightly paler at extreme base and the first longitudinal vein being darker, dark blackish brown, with the squamae opaquely pale yellowish white and with a whitish fringe, with the discoidal cell somewhat subacute apically, its apical cross vein being much shorter than discal cross vein; halteres brownish, with brownish knobs. *Head* with the interocular space comparatively narrow, at narrowest part only very slightly broader than front ocellus; frons with the central furrow distinct, but more evident posteriorly; antennae with joint 3 longer than 1 and 2 combined, thickened in basal half, broadest at about basal third or more, with the first terminal joint distinct and conical; proboscis about 6 mm. long. *Legs* with a small spine or two on front and middle femora apically above; front ones with 1–2 pallid spines behind; middle ones with about 3 spines in front and 2 behind; hind ones with about 9 spines below. *Hypopygium* (text-fig. 128, side view) with the lateral process, on each side of aedeagus, broadened, racket-shaped or clavate apically.



Text-fig. 128.—Side view of hypopygium of ♂ *Systoechus acridophagus* n. sp.

Type in the Stellenbosch University collections.

Length of body: 9 mm.

Length of wing: 10 mm.

Locality.—Karoo: Prince Albert Distr.; Vogelfontein (Potgieter, 12/4/29).

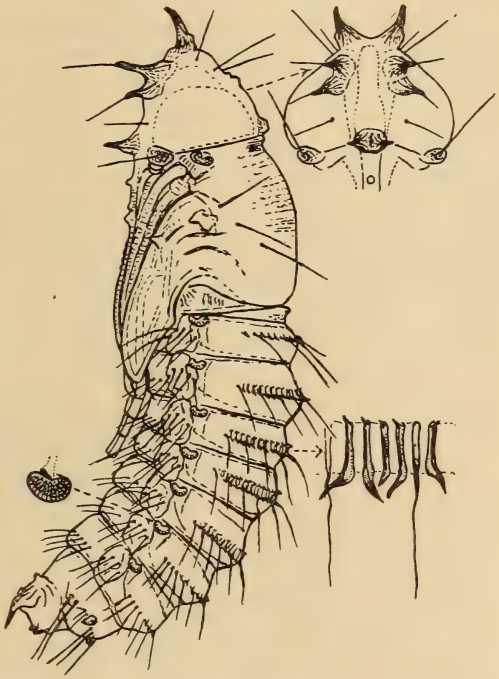
This species superficially resembles the preceding *xerophilus*, but may at once be distinguished by the conspicuous rows of black bristles across hind margins of abdomen, by the less dense and less blackish mystax in the ♂, less convex frons and the femora, which are only darkened at extreme bases. From *eremophilus* Hesse, which it also resembles, it differs in being much paler sericeous, much whiter below, not distinctly pale yellowish brassy or golden above, much narrower interocular space, less extensively reddened sides of abdomen, and with the transverse rows of bristles on abdomen very much more broadly interrupted above on segments 2 and 3. This specimen, like specimens of *xerophilus*, was also hatched from larvae obtained from egg-packets of *Locustana pardalina* Walk. Like *xerophilus*, this species is thus also of great economic importance in that its larval stages parasitise and feed on the eggs in egg-pods of the Brown Swarm Locust, *Locustana pardalina*, in South Africa. This species, as stated under *xerophilus* (*see* above), was also incorrectly determined as *albidus* Lw. by the Agricultural Department (see pp. 5 and 32, and also fig. 6, *a*, Science Bull. No. 82 or Science Bull. No. 6, Stell.-Elsenb. College, 1929). From Loew's description of *albidus* (p. 190 in Dipt. Faun. Südafr., i, 1860), this specimen differs in having the costal cell, base, and first basal cell of wings whitish opaque and not yellowish brown or coffee brown, an entirely black face and head below, more numerous transverse black bristles on abdomen, no distinct and characteristic ochreous yellow or fulvous pubescence towards apex of venter in ♂, no entirely brownish black or black femora, much narrower interocular space in ♂, no keel-like plate to the aedeagus below, etc.

As only one adult specimen was hatched and only one pupa, containing an unhatched ♀-specimen, were obtained by Potgieter, it seems that this species is much less common than *xerophilus* at that locality at least.

Owing to the fact that Potgieter was under the impression that he was dealing with one species, his interesting and important remarks and observations on the biology of the larvae (loc. cit., pp. 32 and 33, and also under *xerophilus* above) would justify the conclusion that the habits of the larvae of both these species are in all probability ecologically very similar. From the dried and numerous spirit material kindly submitted to me, I can find no specific or structural differences which would enable me to describe the larva of this

species. It would thus appear that either there are no larvae of this form present in this material or that the larvae do not differ structurally from those of *xerophilus* described above. In the latter case my description of the larva of *xerophilus* would also be applicable here. Judging from Riley's figures of the larva of the American "*Systoechus oreas*" (p. 648, Insects of New Jersey, 1899, by J. B. Smith) and those of some Palaearctic species figured by Portschinsky, specific differences of *Systoechus* - larvae are very slight.

The *pupa* (text-fig. 129).—One pupa, still containing an enclosed and unhatched ♀-specimen, can definitely be relegated to this species, and I also think it is the same one that was photographed by Potgieter (loc. cit., fig. 2, *b*). The abdominal segments of the unhatched ♀ distinctly show the transverse rows of stiff and stout black bristles through the translucent pupal case. The pupal case, excluding head and thoracic segments, has 8 distinct abdominal segments and a terminal or genital segment, and, owing to the sericeous or pale brassy reflections of the pubescence of the enclosed fly, shows a brassy or pale golden metallic sheen, especially on thorax above; the dentate spines on head, scutellar region, those transversely embedded on abdominal segments above and the terminal spines and processes dark brownish to blackish brown, with the apical parts of the cephalic spines and those on terminal segment darker and more blackish, with the apices of the transverse rows of embedded spines on abdomen above paler and more reddish or yellowish brown; bristles on body reddish



Text-fig. 129.—Side view of pupa, front view of cephalic capsule, and enlarged spines of pupa of *Systoechus acridophagus* n. sp.

brown; proboscis-sheath and leg and wing-cases ventrally appearing dull dark brownish. *Cephalic region* with a rugose tubercular prominence above on each side very near mid-dorsal line at slightly half the distance between basal tubercles and frontal spines; frontal region with a prominent forwardly and slightly downwardly directed dentate spine on each side in front, the broad basal half of each being longitudinally rugose and subangularly prominent along its outer carinate margin near base and with a small ocellus-like papillate prominence above at base, also with a long bristle on each side of head above near base of the frontal spines and another pair just behind them nearer midline; facial region below with an inner anterior and outer lower or posterior dentate spine on each side, the rugose bases of which are prominently boss-like and confluent just below frontal spines, each spine provided apically with a long and slender bristle, with a slight depression on each side near midline of face, being the external cicatrices of an internal and backwardly projecting spine-like process on each side and with a bristle externally on each side of depression; proboscis-sheath with a pair of dentate spines at its base, the bases of which are confluent and rugulose, with a medial tubercular prominence some distince away in front of the basal spines and some other slight prominences farther forwards, the apical part being transversely wrinkled. *Thorax* broadest a little before middle across lateral prominences and there slightly broader than across eyes, convex discally as shown in figure, pronotal part with a slight rugulose ridge-like prominence in front near midline on each side behind basal prominence on head, with an auriculate spiracular prominence on each side laterally just behind eye and with other prominences and bristles as shown in text-fig.; mesonotal region with a lateral tubercular prominence (base of wing) on each side and bristles arranged as in figure; wing-cases with the position of some of the chief longitudinal veins already visible and with a distinct dentate spine or prominence nearer base along costal part; scutellar region transversely wrinkled discally and with a slight basal prominence. *Abdomen* with the basal part of segments 1–7 more or less centrally carinate along midline, with transverse rows of spines and bristles on the transversely convex part of segments above as shown in figure, not extending to extreme lateral fold, these spines less developed and not embedded for their greater part on tergites 1, 6, 7 and 8, and also not extending very far down laterally, those on 6–8 being replaced laterally by bristles alone, every 2–3 spines separated by a long bristle and with 5–8 bristles on each side of the

tergites, namely, 1=5, 2=5, 3=5 or 6, 4=6, 5=6, 6=7 or 8, 7=7 and 8=6 or 7; tergites 2–5 with denser, more conspicuous, and longer spines, the greater part of each of which is embedded lengthwise and also with a small basal projecting spinelet as well, with every set of 3 or 4 spines separated by a long bristle; lateral prominent fold between tergites and sternites also segmented in form of a row of prominences, of which 1–4 usually have an arcuate row of 4 or 6 long bristles and 5–7 only 4 to 5, and with 2 long ones and often a short one on 8; tergites 1–7 each with a pale brownish ear-shaped



a. *b.*

TEXT-FIG. 130.—(*a*) Dorsal and ventral views of last pupal segment of ♀ *Systoechus xerophilus* n. sp. (*b*) Dorsal and ventral views of last pupal segment of ♀ *Systoechus acridophagus* n. sp.

spiracle nearer base; sternites less convex, with a variable number, 2–5, bristles on each side of 7 and none on 8; tergite 8 above with the rudiments of the, now functionless, larval spiracles as a slight prominence on each side a little behind middle, with the lower sides of 8 also tumid and prominent; terminal segment in ♀ (text-fig. 130, *b*) in form of a truncated cone with a slight medial basal prominence above and a short conical spine on each side of midline a little more posteriorly, with an upwardly directed slender and sharp terminal spine on a broad base posteriorly on the ventral aspect, the inner margins of these spines being carinate and the lower face of their bases each with more or less 3 carinate ridges, with the ventral part of the segment slightly transversely carinate basally and with a few short transverse wrinkles near apical part of the previous segment.

Length of dried specimen: about 12 mm.

Greatest breadth across middle of body: about 4 mm.

Locality.—Karoo: Prince Albert Distr.; Vogelfontein (Potgieter).

1 ♂ 1 ♀ *S. rufiarticularis* n. sp.

Body black; scutellum, excluding the slightly blackened base, more or less dark brownish red; antennae brownish red, with joints 1 and 2 in ♂ slightly darkened above; legs pale brownish yellow, with whitish scaling, the femora not blackened basally in ♂, the last 3 or 4 tarsal joints blackish brown to black, with the spines below and behind on front and middle tibiae and those on middle femora behind pale brownish yellow, the rest dark blackish brown; general pubescence from above deep yellow, more or less deep ochreous yellow, especially above wings and on sides of abdomen, when viewed from in front the general effect is slightly paler, being very pale and almost sericeous white on occiput and thorax above in ♂, more yellow in ♀, that on sides in front of wings slightly more yellowish sericeous in ♂, distinctly deeper yellowish in ♀, hair on scutellum to apex of abdomen above pale whitish sericeous to pale yellowish sericeous in ♂, the sides being distinctly more ochreous or pale orange, more uniformly yellowish sericeous in ♀ and also becoming ochreous or pale orange towards apex laterally, that on head below white, that on pectoral and pleural regions and venter almost dull whitish, the upper parts of pleurae and metapleural tuft being more pale yellowish white in certain lights, the pubescence on frons in ♀ yellowish, slightly more brownish in ♂, that on sides of face and in mystax creamy sericeous in ♀, slightly paler in ♂, with the bristly hairs on tubercle, frons, first antennal joints, face in front and on genae dark brownish black and with a slight rufous tint in ♂, in ♀ more brownish and the dark hairs in mystax and genae also less dense and less numerous than in ♂, with all the bristles on thorax, scutellum, and those in transverse rows on hind margins of abdomen yellowish, those towards apex of abdomen laterally, however, more ochreous, with the spines surrounding genital aperture of ♀ more reddish brown; wings not entirely hyaline, but, when viewed sideways, with a very faint brownish or mauvish tinge, becoming slightly more evident towards base in certain lights, the costal cell and first basal cell being more subopaquely pale yellowish white and the base and alula distinctly opaquely pale yellowish brown or ochreous, with the basal comb dark blackish brown and the scaling behind it yellowish to ochreous yellowish, the veins brownish, becoming more reddish brown along main veins basally, with the squamae opaquely pale yellowish or ochreous and with brownish borders and a pale yellowish fringe; halteres yellowish, with almost white knobs. *Head* with the inter-

ocular space in ♂, at narrowest part, about as broad as front part of tubercle and slightly more than half as broad as posteriorly, a little more than 3 times as broad as tubercle in ♀ and the inner margins of eyes rather rapidly diverging anteriorly; antennae with joint 1 shorter than 3 and with 1 and 2 combined subequal to or slightly shorter than 3, with 3 slightly constricted at base, thickened and broadest in basal half then gradually narrowed apically, a distinct and slender apical part present, with the first terminal joint small and conical, shorter than style; proboscis about 3½–4 mm. long, with the minute spicules below scarcely discernible. *Abdomen* with the pubescence towards apex tending to be longer and denser and more distinctly tuft-like, with the transverse rows of bristles in ♀ stouter and less broadly interrupted above. *Legs* without very dense and long hairs basally on femora below in ♂ and without any apical spines above on front and middle femora; front ones unarmed; middle ones with about 1–2 spines in front and 1 behind; hind ones with about 4–5 spines below from near base to apex. *Hypopygium* of ♂ (text-fig. 131, side view) with the pubescence on dorsum of basal parts not very long and dense; lateral process, on each side of aedeagus, distinctly clavately broadened apically.



Text-fig. 131.—Side view of hypopygium of ♂ *Systoechus rufiarticularis* n. sp.

Types in the South African Museum.

Length of body: about 7–8 mm.

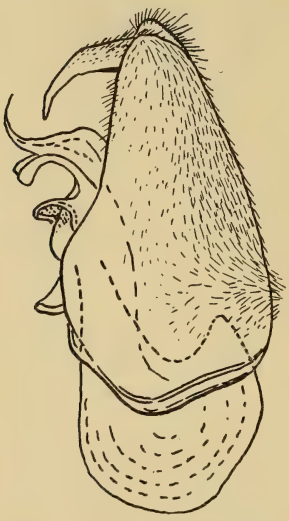
Length of wing: about 7–7½ mm.

Locality.—Portuguese East Africa: Inhambane (Lawrence, Jan. 1924) (♂-holotype); Masiene (Lawrence, Dec. 1923) (♀-allotype).

This species seems to be near *chrystallinus* Bezz., but differs in having brownish red antennae in the ♂ as well, entirely yellow femora in both sexes, in having black spines on the femora, slightly or faintly brownishly or mauvishly tinged wings, shorter proboscis, slightly smaller size, etc.

1 ♂ 2 ♀♀ *S. chlamydicterus* n. sp.

Body black; face (entirely in ♀ and more or less anteriorly in ♂), first and second antennal joints and to a certain extent also basal part or basal half of joint 3 yellowish or pale yellowish red, slightly more pale brownish red in ♂; third antennal joint reddish or mauvish brown; scutellum, excluding black base and sides, and indefinite spots laterally on segments 3–6 of abdomen in ♂ pale brownish red; venter with the narrow hind margins whitish or pallid; legs pallid or pale yellowish, with the front and middle femora in ♂ slightly darkened at extreme bases, with the last 2 or 3 tarsal joints dark brownish to blackish and all the spines on legs yellowish; general pubescence above ochreous yellow or deep golden yellow, that on the anterior part of thorax in ♂, in certain lights, more yellowish sericeous, that on abdomen above more lemon yellow or pale yellowish sericeous, especially towards apex, that on pectoral and pleural regions and venter basally distinctly paler than above and more pale yellowish white, inclining more to white and slightly more so in ♀, with the middle and apical part of venter more yellowish, the hair on sides in front of wings and along upper parts of pleurae deeper yellowish when viewed obliquely from behind, the pubescence on frons, sides of face and face pale yellowish sericeous, slightly paler in ♂, with the bristly hairs on ocellar tubercle, frons, first antennal joints, on face laterally and intermixed with paler ones in front reddish or purplish brown, those in front in ♂ being more numerous and the mystax in ♂ also with a more distinct mauvish or purplish sheen, the hair on head below white, the macrochaetae, bristles on thorax and scutellum as well as those transversely on abdomen above yellow; wings comparatively narrow and slender, vitreous hyaline, with a faint whitish or even reddish tinge in certain lights, with the costal cell, first basal cell and base as well as alula subopaquely very pale yellowish white to whitish, with the basal comb blackish brown and with pale yellowish to creamy yellowish scaling behind it, with the veins pale brownish



Text-fig. 132.—Side view of hypopygium of ♂ *Systoechus chlamydicterus* n. sp.

yellow, becoming more yellowish or reddish basally, the squamae opaquely whitish and with a very pale yellowish white fringe; halteres yellowish, with almost whitish or very pale yellowish white knobs. *Head* with the interocular space in ♂, at narrowest part, about as broad as front ocellus, the margins at first scarcely diverging anteriorly for a distance about equal to length of tubercle, in ♀ a little more than 3 times as broad as tubercle; antennae with joints 1 and 2 combined shorter than 3, with 1 at least $2\frac{1}{2}$ times as long as 2, with 3 comparatively slender, slightly thickened in basal half where it is also broadest, very slightly more rapidly narrowed from broadest part to apex above than below in ♀ (more sinuous above), with the apical part slender, with the first terminal joint in ♂ relatively long, slightly narrower than apex of 3 and about as long as style, more conical and shorter in ♀; proboscis about 4–$4\frac{1}{2}$ mm. long and with the minute spinules below visible. *Legs* without any apical spines above on front and middle femora and all femora with long hairs below basally in ♂; front femora unarmed; middle ones with about 1–2 spines in front and 1–2 behind; hind ones with about 5–7 spines below from just before middle to apex, the basal ones being often long and slender. *Hypopygium* of ♂ (text-fig. 132, side view) with the lateral process, on each side of aedeagus, comparatively short and narrow, strap-like and scarcely broadened apically.

Holotype in the Transvaal Museum, allotype in the South African Museum.

Length of body: about 7–10 mm.

Length of wing: about $7\frac{1}{2}$–9 mm.

Locality.—Transvaal: Waterberg Distr. (Jutrzencka, 1898–99).

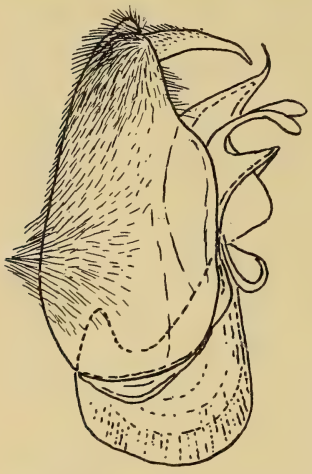
This species is easily recognised by its lemon yellow or deep golden yellow pubescence, the pallid or yellowish first and second antennal joints, very pale legs with entirely yellowish spines and narrow vitreous hyaline wings.

S. nigribarbus Lw.

(P. 13, Peter's Reise. n. Mossamb. Zool., v., 1862; Paramonow, p. 238, Trav. Mus. Zool. Kiev., No. 10, 1931.)

Several ♂♂ and ♀♀ before me from localities in Portuguese East Africa, such as Nyaka, Inhambane, Masiene and Inyack Islands, appear to agree very well with Loew's description of *nigribarbus* as far as the ♂♂ are concerned and, although Loew's description is very short, the salient characters of the ♂♂ are nevertheless mentioned.

It may be possible that some of Bezzi's specimens, identified as *chrystallinus* (p. 65, The Bombyliidae of the Ethiopian Region), may prove to be specimens of *nigribarbus*. The distinguishing features of the ♂♂ are the yellow or lemon yellow pubescence above, which in certain lights is pale yellowish sericeous on the thorax and towards apex of abdomen more ochreous yellow; pubescence below on head, pectoral, middle pleural parts and basal part of venter more whitish, the mystax on face well developed, dense and black, with the bristly hairs on frons, antennae, ocellar tubercle and sides of face also conspicuous and densely black; sides of the abdomen in ♂ (hidden by the pubescence), like the scutellum, also reddish; all transverse rows of bristles on abdomen may be yellow like the rest of hair or in some forms a few more brownish yellow ones may be present laterally towards apex. *Wings* hyaline but with a very feeble reddish tinge, with the costal cell, base, alula and first basal cell subopaquely whitish or pale yellowish white. *Legs* yellow, the bases or basal halves of femora may, however, be blackish, with the spines blackish brown on femora and upper parts of tibiae, with often, however, one or two basal ones on hind femora pallid. *Hypopygium* (text-fig. 133, side view) with the lateral process, on each side of aedeagus, comparatively long and slender, slightly broadened and spathulate and more or less slightly pointed apically.



Text-fig. 133.—Side view of hypopygium of ♂ *Systoechus nigribarbus* Lw.

The undescribed ♀ is coloured like the ♂, if not slightly deeper and more golden yellow; pubescence towards apex of abdomen more often distinctly ochreous yellow; hair on pectus and pleural region more distinctly straw-coloured whitish, the upper parts of pleurae and metapleural tuft, as in ♂, more yellowish; head with the interocular space about $3\frac{1}{2}$, or a little less, times as broad as tubercle, whereas in ♂, at narrowest part, it is only about as broad as front part of tubercle, with the bristly hairs on head above brownish to blackish, the black ones on face less dense and less numerous than in ♂, with the mystax containing more yellowish or intermixed creamy hairs, the bristles on lower parts of first antennal joints and some on sides

of face also more yellowish; antennae with joints 1 and 2 combined slightly shorter than 3, with 3 slightly thickened basally, more so than in ♂, where they are almost rod-like; abdomen with the transverse rows of bristles yellow above on segments 2–4, but on sides of 3 to apex and also above on 4 or 5 to apex darker and either pale reddish or brownish yellow to reddish brown to even darker; legs entirely yellow, the bases of femora not distinctly darkened, without any apical spines above on front and middle femora, the front ones unarmed, with 1–3 spines in front and 1–2 behind on middle ones in both sexes and with about 5–7 black spines below from just before middle to apex on hind ones and of which 1 or 2 in some specimens may be yellowish.

Length of body: about 7–10 mm.

Length of wing: about 7–9 mm.

Locality.—Portuguese East Africa and Transvaal. (In the Deutsches Entomologisches Institut and in Transvaal and South African Museums.)

It is evident that this species is variable with respect to the colour of the transverse bristles towards apex of the abdomen, which range from entirely yellow to deeper yellowish ones, through reddish, brownish to blackish ones.

2 ♀♀ *S. nigribarbus* var. *falsus* n.

(Syn.=*mixtus* Bezz. nec Wied.)

These ♀♀ appear to represent only a variety of *nigribarbus* and, in view of the absence of ♂-specimens, they may be taken as representing a more western variety. From a typical ♀-*nigribarbus* they differ in having the pubescence on body above distinctly much paler, more straw-coloured whitish on thorax and even on abdomen less markedly ochreous yellowish, with the bristly hairs on ocellar tubercle, frons and intermixed on face as well as the transverse bristles on abdomen on sides and towards apex darker, more dark reddish brown, brownish to blackish brown; wings with the base, costal cell and first basal cell slightly more subopaquely ochreous yellowish and the veins darker reddish; interocular space tending to be slightly narrower, only about 3 times as broad as tubercle. These ♀♀ also resemble *canipectus* from which they differ in having slightly less mauvishly tinged wings, smaller basal comb and more reddish brown bristles on abdomen.

Type in the South African Museum.

Length of body: about 8½–9 mm.

Length of wing: about 9–10 mm.

Locality.—S.W. Africa: Kaokoveld; Kamanyab (Mus. Exp., Mar. 1925) (Type). N.W. Transvaal: Junction of Crocodile and Marico Rivers (Tucker, Feb. 1918).

The specimen from the Transvaal was referred to *mixtus* by Bezzi. This variety differs from ♀♀ of *xerophilus* in having distinct dark transverse bristles on abdomen. A very poor specimen from Grootfontein (S.W. Africa) which Bezzi identified as *ctenopterus* Mik. probably also belongs here and not to Mikan's species.

S. chrystallinus Bezz.

(P. 65, Bombyliidae of The Ethiopian Region, 1924.)

In his monograph, Bezzi described this species from Nyasaland and also refers certain other ♀♀ from Portuguese East Africa and North Rhodesia to it. This species, according to the description, differs from what I take to be *nigribarbus* Lw. in having at least the first and second antennal joints in ♀♀ reddish or yellowish, no red to sides of abdomen in ♂♂, entirely yellow bristles in transverse rows on abdomen in ♀♀, with the majority of spines on legs and also hind femora below yellowish and in having the apical part of the discoidal cell of wing more acute.

In the Rhodesian Museum there is a ♀-specimen from "Sawmills, S. Rhodesia, 16/11/24" identified as *chrystallinus* Bezz. by Brunetti and which Dr. Arnold has kindly loaned for comparison. This specimen, however, according to Bezzi's description, is not typical in that the antennae are entirely black, the apical hair on abdomen is not distinctly deeper yellow than the rest of the hair, the spines on middle femora in front are dark blackish brown and not yellow. A somewhat denuded ♀, from Montrose (Lingnau, 15/1/26) in Northern Transvaal, in the Deutsches Entomologisches Institut, also has dark antennae and is also referred to this species.

8 ♂♂ 23 ♀♀ *S. albipectus* n. sp.

(As *mixtus* Bezz. nec Wied. by Bezzi in part, p. 43, Ann. S. Afr. Mus., vol. xviii, 1921.)

One ♀-specimen of this species, from Bushmanland, was referred to *mixtus* Wied. by Bezzi. From Wiedemann's description of *mixtus* (p. 336, Aussereurop. Zweifl. Ins., i, 1828) it is obvious that this

specimen does not belong to *mixtus* (cf. description of *mixtus* in this paper). The characters of the specimens referred to *albipectus* are:—

Body black; scutellum, excluding black base, the sides of abdominal segments or sides of 2–4 and to a certain extent hind margins of last few tergites and even last tergite in ♂♂ reddish, in ♀♀ entirely black or very obscurely infused with reddish in some specimens; the sutural parts on pleurae sometimes also infused with reddish in some specimens; legs pale reddish brown to brownish, with the extreme bases or even the basal halves of front and middle femora, but especially the front ones in ♂♂, blackened, with the apical parts of the middle and hind tibiae and front surfaces of the front tibiae, the hind tarsi and also the other tarsi, or at least more than apical halves of front and middle tarsi, blackish or black, the black on tibiae mostly due to black scaling, with the spicules and apical spurs in lower outer row of front and middle tibiae yellowish or consisting of partly dark and partly yellowish spicules, and in some specimens even predominantly dark; pubescence above ranging from almost sericeous whitish through sericeous yellowish to brassy or golden yellowish, usually paler in ♂♂, the more sericeous to golden pubescence in ♀♀, that on abdomen above in ♂♂ usually becoming paler and even almost whitish sericeous or white apically, that on abdomen above in ♀♀ more gleaming brassy, deep sericeous or golden yellow, that on sides of thorax usually slightly deeper yellowish than on disc in certain lights, the bristly hairs on ocellar tubercle, bristly hairs or bristles on frons, the bristly hairs on antennal joint 1, very numerous intermixed bristly hairs on face and genae, the very conspicuous, stoutish and longish transverse bristles across hind margins of tergites 2–6 in ♂♂ and 2–7 in ♀♀, and often some on sides of tergite 1 in some ♂♂ and the sparser and slightly shorter bristles on venter in both sexes, black, with the depressed pubescence on frons in ♀♀ more or less slightly fulvous, becoming more sericeous yellowish to whitish on sides towards antennae, that densely intermixed on face sericeous yellowish to faintly ochreous yellowish, the dense hairs around buccal rims especially in ♂♂ with a more distinct ochreous tint, with the dense pubescence on sides of abdomen and on apical half of venter below in ♂♂ to a variable extent, but sometimes strikingly, gleaming ochreous yellow, fulvous, to brownish golden, that towards apical part of venter in ♀♀ usually also with an ochreous tint, with the pubescence on head below, propleural parts, the pleurae, in metapleural tuft, sides of venter for about or nearly half its length and the base of venter and that on coxae markedly and contrastingly sericeous

white to almost silvery white, the longer bristles on coxae, especially in ♀♀, more yellowish, with the fine scaling on legs whitish on femora and on outer surfaces of front and middle tibiae, but appearing dull pale yellowish in certain lights and distinctly more yellowish towards apices of hind femora; wings subopaquely greyish hyaline, sometimes with even a slight cinereous tinge in certain lights, with the basal comb well developed and black, with the base, costal cell and first basal cell almost opaquely pale yellowish brown to pale brownish and even cinereous brownish, with the veins very dark brown or blackish brown, becoming more reddish brown at base, with the squamae opaquely yellowish to pale yellowish brown, the fringe being gleaming sericeous whitish in lower part and distinctly ochreous yellow to fulvous or even ochreous brownish in upper part, in which are also intermixed dark or brownish bristly hairs; halteres brownish, with very pale yellowish to ivory yellowish knobs. *Head* with the interocular space in ♂♂, at narrowest part, very narrow, about as broad as front ocellus, sometimes almost touching, with the inner margins of eyes at first very gradually diverging apically for a distance subequal to length of tubercle before diverging more rapidly, with the interocular space in ♀♀ on vertex about 3, or a little more than 3, times as broad as tubercle; eyes in ♂♂ tending to be slightly flattened above and with the facets very coarse in upper part; antennae with joint 1 about 2½–3 times as long as 2, with joint 3 only a little longer than 1 and 2 combined, broadest at base then gradually narrowed apically, the apical part, however, almost rod-like, with the first terminal joint about as broad as apex of 3, scarcely or only slightly shorter than very slender style; proboscis about 4½–7 mm. long, straight and with the fine spicules visible below; palps gradually clavately broadened apically and somewhat flattened. *Legs* without any spines apically above on front and middle femora; front femora with about 1–4 spines in front and about 1–2 behind; middle femora with about 2–7 spines in front and 2–5 spines behind; hind femora with about 8–13 spines below on outer aspect and some smaller ones on inner aspect, with all the spines in ♀♀ more strongly developed;



Text-fig. 134.—Side view of hypopygium of ♂ *Systoechus albipectus* n. sp.

claws more or less rapidly curved downwards apically. *Hypopygium* of ♂ (text-fig. 134, side view).

Types in the South African Museum.

Length of body: about 7–12 mm.

Length of wing: about 7½–12 mm.

Locality.—N. Karoo: Venterstad Distr. (Mus. Staff, Oct. 1935) (Types); Steynsburg Distr. (Mus. Staff, Oct. 1935). C. Karoo: Murraysburg Distr. (Mus. Staff, March 1931). Nieuwveld Karoo: Victoria West. Distr. (Mus. Staff, March 1931). Namaqualand: Bushmanland; Henkries (Lightfoot, Oct. 1911). Eastern Karoo: Grahamstown; Resolution (Walton, 29/1/28) (in the Transvaal Museum); Graaff-Reinet (Ogilvie, 24–27/10/31) (in the Imperial Institute). One ♀-paratype without locality in the Transvaal Museum.

This species, being very widely distributed over the greater part of the Karoo, is slightly variable in size and the colour of the pubescence, which ranges from very pale sericeous yellowish to golden yellowish. The ♀-specimen from Grahamstown has the face reddish and quite as much reddish on sides and apex of abdomen as in ♂♂. The very large ♀ from Bushmanland, which was labelled *mixtus* by Bezzi, differs from typical large ♀♀ in having more golden yellowish pubescence, the costal and basal part of wings paler yellowish and the veins much paler and yellowish. This species is easily distinguished by the striking and almost *Anastoechus*-like sericeous white or cretaceous white pubescence on body below. Structurally and specifically it is very near *spinithorax* Bezz., from the ♂-type of which it differs in having the antennae and face black and less extensive red on abdomen, more sericeous yellowish pubescence above, not silvery whitish, and without brownish golden hairs on disc of thorax, entirely pale yellowish bristles, and not reddish brown ones, on thorax, in having predominantly pallid spicules below on front tibiae and the slightly different aedeagus.

1 ♀ *S. canescens* n. sp.

Body black; scutellum reddish brown; legs yellowish, with whitish scaling, with the apices of hind tibiae and the tarsi more brownish, the last 2 or 3 joints being very dark brown and the claws almost entirely black; pubescence, viewed from above, greyish white in front and whitish on abdomen, viewed from the side that above is sericeous white with a tendency for that on occiput to

be very pale yellowish sericeous, the hair on head below, pleural and pectoral regions and venter pure white, the pubescence on frons very pale yellowish sericeous, becoming whitish laterally on face, with the hairs on face in front and laterally on genae as well as round buccal rim distinctly more, but very pale, yellowish sericeous in certain lights, the bristly hairs on tubercle, frons, first antennal joints laterally and those intermixed on face in front and also on sides black, those on antennae below being predominantly whitish or yellowish, the bristles on thorax, scutellum and on abdomen above whitish, the transverse stout ones laterally on abdominal segments 2–7 and more or less those on 4–6 above black, those on venter white; wings vitreous hyaline, with the base, costal and first basal cell and alula more or less subopaquely whitish, the base with a yellowish tinge, with the basal comb black and the scaling behind it whitish, with the veins pale brownish yellow, becoming paler and more yellowish basally, the squamae opaquely whitish and with a yellowish border and a white fringe; halteres yellowish, with very pale yellowish white knobs. *Head* with the interocular space about 3 times as broad as ocellar tubercle; antennae with joint 1 only slightly shorter than 3, with 3 comparatively short, broadest at about basal fourth, then gradually narrowed to slender apical fourth, with the first terminal joint small, conical, as broad as apex of 3 and shorter than style; proboscis long, about 6 mm. long. *Legs* without any apical spines above on front and middle femora; front ones unarmed; middle ones with about 2 spines in front and 1 behind; hind ones with about 6 spines below from just before middle to apex; claws rapidly curved downwards apically.

Type in the Transvaal Museum.

Length of body: about 10 mm.

Length of wing: about $9\frac{1}{2}$ mm.

Locality.—Transvaal: N.E. Zoutpansberg Distr. (Breyer, 7–8/16).

Recognised by its whitish pubescence and particularly by its white undersurface and white-haired venter.

1 ♀ *S. damarensis* n. sp.

(Syn. = *mixtus* Bezz. nec Wied.)

Body black; scutellum, excluding black base, posterior calli in part reddish; legs with the femora, excepting only the pale brownish yellow apices, almost entirely dark blackish brown to black, the tibiae pale brownish yellow, the tarsi brownish but the apical parts

and the claws blackish; pubescence above straw-coloured whitish, that on disc of thorax in certain lights with a slightly more yellowish tint, that on sides in front of wings more yellowish straw-coloured, that on abdomen above almost white, becoming distinctly white towards apex, the hair on pectoral and pleural regions in metapleural tuft and on venter straw-coloured and inclining to faintly yellowish in certain lights, that on frons and hairs on face straw-coloured whitish and that on head below white, the bristly hairs on ocellar tubercle, sides of frons, that sparsely intermixed on face in front and also laterally on face and genae and a few on antennal joint 1 dark blackish brown, the macrochaetae, bristles on mesopleuron, long ones on posterior calli, on scutellum and those transversely above on abdominal segments 2–3 as well as those on venter basally pale straw-coloured yellowish, those above on segments 4–7 black, with the rows very broadly interrupted above on 2 and 3; wings vitreous hyaline, with the base, costal and first basal cells and the alula subopaquely yellowish, with the basal comb black and the scaling behind it whitish, the veins brownish, becoming paler and more reddish or yellowish brown basally, the squamae opaquely pale yellowish and with a straw-coloured whitish fringe; halteres pale yellowish brown, with paler brownish yellow knobs. *Head* with the interocular space quite $3\frac{1}{2}$ times as broad as ocellar tubercle; antennae (damaged and with joint 3 missing) but joint 1 quite $2\frac{1}{2}$ times as long as 2; proboscis about 5 mm. long, without discernible spinules below. *Legs* with a minute apical spicule or two above on front and middle femora; front ones apparently unarmed below; middle ones with about 2 spines in front and 1 behind; hind ones with about 7 spines below on outer aspect and about 5 smaller ones on inner aspect.

Type in the South African Museum.

Length of body: about 9 mm.

Length of wing: about 9 mm.

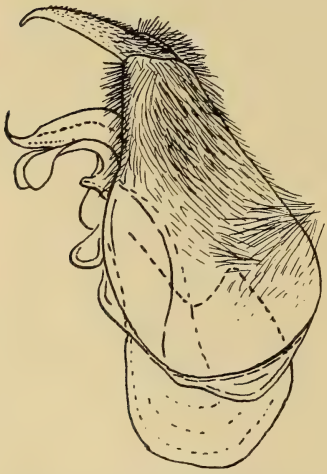
Locality.—S.W. Africa: N. Damaraland; Otjivarongo (Brown, Apr. 1921).

This solitary specimen was labelled as *mixtus* Wied. by Bezzi, with which species it, however, has no relationship other than black transverse bristles on abdomen. It can be recognised by its straw-coloured pubescence, blackened femora and conspicuous transverse rows of black bristles on the abdomen. From *canescens* it differs in being less white below, in having dark femora, broader interocular space, etc.

1 ♂ 15 ♀♀ *S. eremophilus* Hesse.

(P. 166, Ann. Trans. Mus., vol. xvii, 1936.)

Body black; scutellum and sides of abdominal segments in ♂, genital segment in ♂ and often the apical part of last sternite in ♀ reddish; legs yellowish, with the bases of femora, especially the front ones, slightly blackened in both sexes, with the apical parts of hind tibiae, the front surfaces of the front ones, the entire hind tarsi and apical parts of the others more brownish, becoming blackish apically like the apical halves of claws; pubescence short on thorax, dull brassy yellowish or dull yellowish, with a slightly paler and more whitish sheen in certain lights on sides of abdomen and towards apex, especially in ♂, often, however, with a more dull golden or very pale dull brassy sheen in ♀♀ on body above; hair on body below only slightly paler and with a slightly more whitish sheen across pleurae above coxae, the head below being distinctly whitish and venter laterally duller yellowish white; bristly hairs on ocellar tubercle, sides of frons, those intermixed in mystax and those on antennal joint 1 in ♂ black; macrochaetae and bristles on thorax and scutellum pale yellowish white to whitish; transverse rows of bristles on abdomen above entirely black in ♂, with the lateral ones on segments 2–4 and towards apex above in ♀ black and those more discally towards base above yellowish, those on venter yellowish basally and more brownish to blackish apically; wings hyaline, with the extreme base, alula, costal and first basal cells more or less subopaquely yellowish to yellowish white, the blackish costal vein and brownish first longitudinal vein enhancing this infuscation, with the veins dark brownish, paler towards the base, with the basal comb black and the scaling behind it pale yellowish white, the squamae opaquely pale yellowish or brownish and with a pale yellowish white fringe; halteres yellowish, with whitish knobs. *Head* with the interocular space in ♂, at narrowest part, only slightly narrower than tubercle,



Text-fig. 135.—Side view of hypopygium of ♂ *Systoechus eremophilus* Hesse.

a little more than 3 times as broad as tubercle in ♀; frons with the central furrow in ♂ distinctly visible in basal half; antennae with joint 1 comparatively longer in ♀, quite 3 times as long as 2, joint 3 slightly obscurely pilose above, with joint 3 (excepting terminal joints) about as long as 1 and 2 combined, thickened in basal half, broadest just before base, with the apical slender part slightly thicker in ♀; proboscis about 5–7 mm. long. *Abdomen* with the transverse bristles distinctly longer than the hair in ♀, scarcely or not in ♂, with the pubescence and bristles on abdomen in ♂, however, apparently denser. *Legs* without any apical spines above on front and middle femora; front ones unarmed below; middle ones with about 2–4 spines in front in apical lower aspect and usually 1–2 on posterior lower aspect; hind ones with about 6–12 spines on outer side below and 2–7 smaller ones on inner side below, more or less in apical aspect; claws rather rapidly curved downwards apically. *Hypopygium* of ♂ (text-fig. 135, side view) with rather dense and long golden hair on basal parts, especially in neck region; lateral process, on each side of aedeagus, distinctly broadened apically, where it is racket-shaped; apices of beaked apical joints bent downwards, slightly outwards and also slightly inwards.

Holotype-♂ in the Transvaal Museum, allotype-♀ in the South African Museum.

Length of body: about 7–12 mm.

Length of wing: about $8\frac{1}{2}$–$11\frac{1}{2}$ mm.

Locality.—Bechuanaland: Kaotwe (V.-L. Kal. Exp., 8–12/4/1930) (Types). S. Rhodesia: Jesse (Ogilvie, 4/32) (Imperial Institute); Matopos (Ogilvie, 4/32).

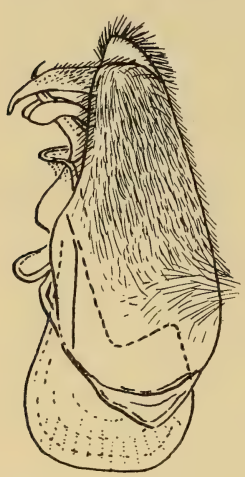
This species is recognised by the hyaline wings, dull yellowish or greyish yellow, even dull and pale brassy, pubescence and transverse rows of stout black bristles on the abdomen. Superficially it resembles *inordinatus* n. sp. but differs in being paler and duller yellowish haired and in not having the basal part of wings coffee brown. From the next species *waltoni* n. sp. it differs in being also duller yellowish haired, femora not distinctly black or dark and by other characters mentioned below.

2 ♂♂ 4 ♀♀ *S. waltoni* n. sp.

This species is so closely related to *eremophilus* that a comparison with it should suffice.

Body black; scutellum, sides of abdominal segments in ♂♂ reddish; general pubescence the same but the effects, in certain

lights, slightly more deeply golden yellowish, the hair on sides of venter basally, in ♂♂ at least, more whitish on venter with more black bristles; wings also greyish hyaline but with the extreme base, alula, costal and first basal cells distinctly darker and more brownish or yellowish brown, with the squamae darker, more brownish and the fringe more yellowish; legs with distinctly darker, more yellowish or pale yellowish brown scaling, with the greater part of the femora darkened and blackish brown or black and even the tibiae are darker. *Head* with the interocular space in ♂♂ distinctly narrower, at narrowest part much narrower than ocellar tubercle, in ♀♀ also about 3 times as broad as tubercle, but the tubercle is slightly smaller; eyes in ♂♂ with the upper facets distinctly coarser than in *eremophilus*; frons with the central furrow even more distinct basally in ♂♂, also even more evident in ♀♀, with the bristly hairs also denser; antennae with joint 3 slightly longer, not subequal to 1 and 2 combined; proboscis, in relation to body, shorter and about 5–6 mm. long, with the minute spinules on labium below distinctly visible (not or scarcely visible in *eremophilus*). *Legs* with some apical spines above on front and middle femora; front ones often with about 2–4 spines in front on lower apical aspect; middle ones with about 4–5 spines in front and 1–3 behind; hind ones with about 9–13 spines, comparatively closer together, on outer side below and about 5–9 on inner side of which a long and a short one are at the base and the others in apical half. *Hypopygium* of ♂ (text-fig. 136, side view) with the lateral process, on each side of the aedeagus, comparatively broad and strap-like, slightly broader apically and distinctly broader and more strap-like than in *eremophilus*, where the apical part is more rapidly broadened; basal parts slightly less pubescent in neck region and beaked apical joints are also distinctly shorter.



TEXT-FIG. 136.—Side view of hypopygium of ♂ *Systoechus waltoni* n. sp.

Holotype-♂ in the Transvaal Museum, allotype-♀ in the South African Museum.

Length of body: about 9–11½ mm.

Length of wing: about 10–11½ mm.

Locality.—Eastern and Southern Karoo: Albany Distr.; Grahams-

town, Resolution (Walton, 21/3/28, 13/3/28 and 1–4/28) (Types). Karoo: Hopetown (Faure, 9/3/29) (University of Pretoria).

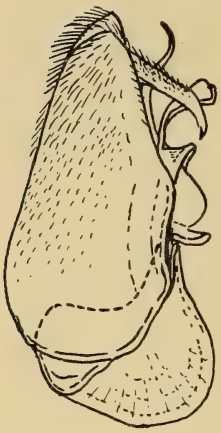
This species also appears to be very closely related to *acridophagus*, from the ♂ of which it may be readily separated by the distinctly more yellowish pubescence, non pale-tipped black bristles across abdomen, more extensively and even entirely dark femora, darker tarsi, longer black spines in basal comb, etc.

The ♀-paratype from Hopetown was bred from egg-packets of *Locustana pardalina*, the brown locust, by Dr. J. Faure. This species thus also parasitises the trek locust like *xerophilus* and *acridophagus*. This ♀-paratype has an empty pupal case attached which is practically indistinguishable from that of *acridophagus* (cf. text-fig. 129). The chief external differences are:—The cephalic spines are shorter and stouter, blunter, the two spines at base of proboscis-rudiment stouter; the long bristles on lateral fold on each side between the tergites and sternites are arranged in this specimen as follows: 1=4, 2=4, 3=4, 4=4 or 5, 5=4 or 5, 6=4, 7=5 or 6 and 8=3 or 4; terminal segment like that of pupa of *acridophagus* but with the terminal upwardly directed spines shorter, flatter, distinctly blunter and with a distinct dentate prominence or subsidiary process on the inner side as well, the dorsum of this segment also with two submedial spine-like prominences as in *acridophagus*. Length of pupal case about 14 mm.

4 ♂♂ 4 ♀♀ *S. brunnibasis* n. sp.

Body black; scutellum reddish to obscure reddish, with the black basal macula large and produced posteriorly, thus almost dividing the red into 2 maculae, with the hind borders often also blackish; legs yellowish, the front and middle femora in ♂♂ blackened to even beyond middle, the apical parts of hind tibiae also darkened; pubescence tending to be shortish, especially in ♂♂ where that on thorax has a more or less shorn-off appearance, pale creamy yellowish, yellowish sericeous to pale golden yellow in ♀♀, slightly more sericeous whitish on disc of thorax in ♂♂, that on abdomen above in ♂♂ also slightly less yellowish laterally, more creamy yellowish, with the transverse bristles on abdomen on segments 2–4 discally yellowish, those laterally and towards apex black in both sexes, those towards apex often tending to be reddish or pale tipped, with the black hairs and bristly hairs on face predominant in ♂♂, the pubescence on body below only slightly paler than above; wings greyish hyaline, but

with the base, costal cell, first and second basal cells, extreme bases of anal and axillary cells and the base of alula distinctly tinged brownish and often deeply so, the second basal cell being distinctly tinged for the greater part and the basal and costal infuscation also more or less delimited from the greyish hyaline rest of wing, with the veins brownish to dark brownish, the first longitudinal vein and the others towards the base being more reddish, the basal comb black; halteres yellowish brown, with pale yellowish white knobs. *Head* with the interocular space in ♂♂, at narrowest part, as broad as front part of tubercle, or at least 2 times as broad as front ocellus, about or slightly more than 3½ times as broad as tubercle in ♀♀; antennae with joint 3 scarcely longer than 1 and 2 combined, more often subequal or equal to these, gradually tapering apically, but slightly broader basally in ♀♀; proboscis about 5–6 mm. long. *Legs* with about 3–4 spines in front and 1–2 behind on middle femora and with about 5–9 spines on hind ones below. *Hypopygium* of ♂ (text-fig. 137) with short bristly hair along apical dorsal inner margins of inner apical parts in neck region of basal parts, the rest of the dorsum with very fine and sparse down; lateral process on each side of aedeagus present as shown in figure.



TEXT-FIG. 137.—Side view of hypopygium of ♂ *Systoechus brunnibasis* n. sp.

Holotype in the South African Museum, allotype in the Durban Museum and paratypes in the Transvaal Museum.

Length of body: about 7½–9 mm.

Length of wing: about 7–8 mm.

Locality.—Natal: Durban; Park Ryme (Barker, 23/12/20) (Holotype); Upper Tongat (Barker, Nov. 1919) (Allotype); Pinetown (Leigh, 30/1/09): Durban (Marley, 1915); Gillitts (H. W. B. M., 24/2/27). Nos. 3112 and 3113 without locality-label.

From *mentiens* Bezz. (p. 68, The Bombyliidae of the Ethiopian Region, 1924) this species differs in having broader interocular space in ♂♂, black transverse bristles laterally only on sides and towards apex of abdomen, wings which are more extensively infuscated at base, etc.

19 ♂♂ 14 ♀♀ *S. silvaticus* n. sp.

(Syn.=*aurantiacus* Big. nec Macq. and *mixtus* Bezz. nec Wied., also *simplex* Bezz. nec Lw.)

Black; scutellum ferruginous red to reddish; sides of abdomen in both sexes entirely black; the apical part of last sternite in ♀♀ yellowish; legs yellowish to brownish yellow, the bases or often the under surfaces of front and middle femora and the bases or even under surfaces of the hind ones in ♂♂ blackened, with the front surfaces of front tibiae more or less darkened in both sexes, the tarsi darkened, becoming more blackish apically; pubescence comparatively long, not with a shorn-off appearance, varying in colour from predominantly sericeous whitish, creamy yellowish, pale sericeous yellowish to brassy or golden yellowish in ♂♂ and straw-coloured yellowish to golden yellow in ♀♀, that on thorax in front in ♂♂ paler and more sericeous whitish in certain lights, that towards apex of abdomen in both sexes tending to become paler, without any deeper yellowish on sides of abdomen even in ♀♀, that in front of wing-bases not or scarcely deeper yellowish than that above, that on head below white, that on pleurae, pectus and base of venter only slightly paler than on body above, but appearing paler, more straw-coloured whitish or whitish when viewed obliquely from in front, with the depressed pubescence on frons, sides of face and the dense hairs on face sericeous yellowish to pale golden yellowish, often slightly deeper yellowish in ♀♀, with the black bristly hairs on tubercle, frons, antennal joint 1, on face and genae comparatively long, fine, dense and shaggy, especially in ♂♂, with the bristles on thorax and scutellum coloured like rest of the hair, the transverse bristles on abdomen, on segments 2–7 laterally black and conspicuous in both sexes, more so in ♀♀, those on 5–7 discally also black and with numerous black intermixed ones always present on sides of 7 in ♀♀, those discally on 2–4 and often also near midline on 5 in ♀♀ yellowish, those discally in ♂♂ predominantly pale, with the bristles on venter pale, whitish or yellowish to beyond middle, some of the apical ones being deeper yellowish or even dark in ♀♀ and the extreme lateral ones in both sexes black; wings greyish hyaline, with the base, costal cell, first basal cell and to a variable extent base of second basal cell yellowish brown to brownish, more distinct at extreme base, the alula more yellowish, with the veins brownish to dark brownish, becoming paler towards base, with the costal vein dark-scaled and the first longitudinal vein brownish, with the basal comb black, the squamae opaquely yellowish

to pale yellowish brown, dark-bordered and fringed with sericeous whitish or yellowish to creamy hair; halteres yellowish, with almost white knobs. *Head* with the interocular space in ♂♂, at narrowest part, about as broad as narrow front part of tubercle, only a little broader than front ocellus, the inner margins of eyes, on each side of tubercle to point of divergence anteriorly, much longer than 2 times the interocular space at narrowest part, almost equal or subequal to length of antennal joint 1, the space on vertex in ♀♀ about 3 or a little more times as broad as tubercle; frons with the central furrow in ♂♂ well developed, only indicated in ♀♀; antennae with first joints comparatively widely separated, often as wide as posterior ocelli, comparatively elongate, about 4½–5, or even slightly more, times as long as joint 2, with joint 3 comparatively very rapidly narrowed from broad base, especially in some ♀♀, shorter than 1 and 2 combined, with the first terminal joint distinct, conical, often almost as long as slender style; proboscis about 5–6 mm. long, with the minute spinules below just visible; palps predominantly blackish, with pale or yellowish hairs. *Legs* without any apical spines above on front and middle femora, the bases below with pubescent hairs in ♂♂; front ones unarmed; middle ones with about 2–4 spines in front and 1–2 behind; hind ones with about 5–8 spines below on outer side and a variable number on inner side, which often end apically and basally in longer spines. *Hypopygium* of ♂ (text-fig. 138) with the beaked apical joints slender and elongate, curved downwards apically and directed slightly inwards; process on each side of aedeagus slender, narrow, strap-like and slightly broadened apically and slightly more obliquely truncated at apex.



Text-fig. 138.—Side view of hypopygium of ♂ *Systoechus silvaticus* n. sp.

Holotype in the Durban Museum, allotype in the South African Museum and paratypes in the Imperial Institute, the Transvaal Museum and Deutsches Entomologisches Institut.

Length of body: about 7–10½ mm.

Length of wing: about 6½–9 mm.

Locality.—Natal: Durban (Chubb, 1/4/17) (Holotype) and (Leigh,

14/5/08) (Allotype): Maritzburg, Gillitts, Greytown, Amanzimtoti, Ingogo and Willow Grange. Zululand: Mfongosi (Jones). Transvaal: Pretoria, Barberton and Louis Trichardt. O.F.S.: Wepener (Lingnau). Portuguese East Africa: Nyaka (Lawrence).

This species is variable in the colour of its pubescence as well as in minor details and is widely distributed. Owing to the presence of black transverse bristles on the abdomen, it has been incorrectly determined and confused with other species also showing black bristles on the abdomen. A ♀-paratype, from Pietermaritzburg, was labelled as "*Bombylius aurantiacus* Macq." by Bigot and on p. 43 in the Ann. S. Afr. Mus., vol. xviii was transferred again to *mixtus* Wied. by Bezzi. A comparison with the descriptions of these two species shows that it cannot be referred to either of them. Another ♂-paratype, from Mfongosi, was also determined as *simplex* Lw. by Bezzi, a species which, according to Loew, has no black bristles on abdomen. According to Bezzi's description of *mentiens* (p. 68, The Bombyliidae of The Ethiopian Region), this species comes very near it and may prove to be identical with it. According to the description, however, the following differences are apparent:—Eyes in ♂-*silvaticus* n. sp., at narrowest part, about as broadly separated as front part of tubercle and wider than front ocellus; antennal joint 3 distinctly shorter than 1 and 2 combined and even subequal to 1; halteres in both sexes with almost white knobs; transverse bristles on abdomen in ♂ only black laterally and above on last 2 segments and also in ♀ black only on sides and above from 5–7; discoidal cell of wing distinctly and more constantly subacute and tapering apically, etc. From *mixtus* Wied. it is distinguished by a more conspicuous development of more numerous black bristles on the abdomen in both sexes, black bristles being present towards apex discally on segments 5–7 and these are not distinctly pale-tipped as in *mixtus*; antennal joint 1 distinctly longer, at least $4\frac{1}{2}$–5 times as long as 2 and joint 3 is more or less shorter or subequal and not much longer than 1 and 2 combined; ocellar tubercle and antennal joint 1 with predominantly black hairs in both sexes and there is no distinct tuft of distinct pale hairs in front of tubercle in ♂; interocular space in ♂ distinctly narrower and scarcely 2 times as broad as front ocellus; wings with the base and costal cell as well as first basal cell and extreme base of second basal cell distinctly darker, etc. From *eremophilus* it differs in having slightly longer pubescence, with a distinctly less shorn-off appearance on thorax, denser and longer black hairs on face, longer first antennal joints, broader interocular space in ♀, narrower

separation of eyes in ♂, distinctly much smaller basal comb and the femora in ♀ not distinctly darkened or blackened basally.

9 ♂♂ 12 ♀♀ *S. silvaticus* var. *turneri* n.

(Syn. = *mixtus* Bezz. nec Wied. and *simplex* Bezz. nec Loew.)

These specimens, from the Eastern Cape Province and South-Eastern Karoo, can scarcely be distinguished from the typical forms of *silvaticus*, and no characters of specific value can be enumerated to distinguish the ♀♀ from those of *silvaticus* s.str. Compared with the typical forms, from Natal and the Transvaal, these specimens differ in having the interocular space in the ♂♂ distinctly narrower, only about as broad as front ocellus and in ♀♀ also tending to be slightly narrower than 3½ times as broad as tubercle; antennal joint 1 tending to be slightly shorter, about 3½–4 times as long as 2, with joint 3 less rapidly narrowed apically, the apical slender part slightly shorter; proboscis may reach the length of 7 mm. in some ♀♀; wings, on the whole, tending to be distinctly darker at base, in costal cell, first basal cell and at base of second basal cell, even more distinctly brownish and in some specimens with a tendency for greater part of second basal cell to be tinged slightly more and with the veins also darker and often blackish; pubescence, on the whole, tending to be paler on the abdomen especially in ♂♂, even the paler-haired specimens being slightly paler than in *silvaticus* s. str. *Hypopygium* of ♂ (text-fig. 139) is scarcely different from that of the typical form (cf. text-fig. 138).



Text-fig. 139.—Side view of hypopygium of ♂ *Systoechus silvaticus* var. *turneri* n.

Types in the British Museum, paratypes in the Albany, Transvaal and South African Museums and in the Agricultural Dept., Pretoria.

Length of body: about 6–12 mm.

Length of wing: about 6½–10 mm.

Locality.—S.E. Karoo: Somerset East (Turner, Nov. and Oct.

1930) (Types). S.E. Cape Province: Grahamstown and District; East London.

Some specimens of this form tend to be entirely silvery white-haired to straw-coloured whitish even in ♀♀, one ♂-paratype from Somerset East being entirely silvery white-haired, the scutellum often slightly less extensively reddish and the basal infuscation on wings often even more pronounced. One ♀-paratype from Grahamstown and another from East London were labelled as *mixtus* and *simplex* respectively by Bezzi.

S. mixtus Wied.

(P. 336, Aussereurop. Zweifl. Ins., i, 1828, and Loew, p. 189, Dipt. Faun. Südafr., i, 1860; syn.=*scutellaris* Wied., according to Loew (p. 189, loc. cit.) and *scutellatus* Macq., p. 94, Dipt. Exot. ii, 1840, also according to Loew).

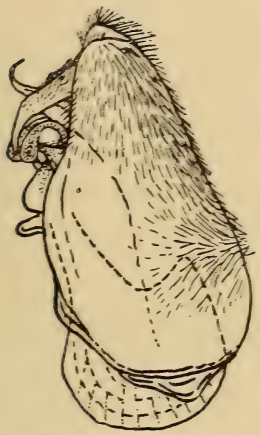
As there are several yellowish-haired species with transverse rows of black bristles on the abdomen, it is extremely difficult to determine this species correctly from the original description or from such references as have been made by authors such as Loew, Bezzi and Ricardo. Bezzi, in his paper on the South African species (p. 43, Ann. S. Afr. Mus., vol. xviii), refers several specimens, from various localities, to this species. A careful examination of these specimens, however, reveals the fact that he lumped together several distinct and different species as *mixtus*, which have now been allocated as synonyms to the various species to which they belong in this paper. The description given by Loew (p. 189, loc. cit.) itself does not clear up the problem, for it is quite evident that Loew had before him also more than one species with black transverse bristles on the abdomen and, moreover, his description does not strictly conform with the original description given by Wiedemann. Wiedemann had only a ♀-specimen, but what he states about the black bristles leaves no doubt that some of the ♀♀ referred to by Loew do not belong to *mixtus* s. str., and this despite the fact that Loew had Wiedemann's type for comparison. Wiedemann distinctly states that "abdomine utrinque setis raris nigris" and again "Hinterleib an jeder Seite mit einzelnen schwarzen Borsten." A characteristic of *mixtus*, as far as the black transverse bristles on the abdomen are concerned, is that there are no transverse black bristles discally above on the segments and that these black bristles are only found sparsely on the sides. The specimens referred to *mixtus* in this paper agree with Wiedemann's descrip-

tion in this respect as well as in other characters mentioned by him and, moreover, are also from the Southern Cape Province and South-Western parts and along the coast up to Namaqualand. It is a common species from the Western Province, a locality from which Wiedemann's type also comes, for there is no doubt that Tollin collected mostly at the Cape and Southern parts.

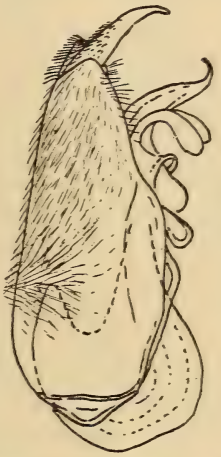
The long series of specimens agree not only in the salient features given by Wiedemann, but also in the following respects:—

Pubescence on body above varying from sericeous whitish, very pale sericeous yellowish to pale yellowish and even golden yellowish, always with a silky gleam and, in certain positions, showing pale sericeous reflections even in yellow-haired specimens, that on abdomen in ♂♂ appearing very pale, becoming more whitish towards apex, that in front of wings scarcely or only very slightly deeper yellowish than above, but often slightly more yellowish in ♀♀, with very dense sericeous whitish or yellowish pubescence on face and frons in addition to black bristly hairs, almost always with a distinct tuft, or at least with numerous pale or yellowish hairs, in front of tubercle in ♂♂ and also predominantly yellowish on tubercle in ♀♀, those on antennal joint 1 in ♀♀ at least predominantly pale, with the hair on body below scarcely paler than that above, but often appearing whitish in more yellow-haired specimens, that on head below, however, distinctly white, with the transverse bristles on abdominal segments 2–7, more often only 4–6, laterally with a variable number of blackish brown to black bristles, the apices of which are usually distinctly paler or pale-tipped in both sexes, those on sides in ♀♀ often more conspicuous, usually more conspicuous towards apex of abdomen, often with only a very few black bristles laterally and in some forms without any black bristles at all, with all the bristles discally above on abdomen entirely yellowish or whitish like the rest of the hair. *Legs* entirely yellowish in both sexes or with the very extreme bases of the femora darkened in some forms, with or without apical spines above on front and middle femora, with the front ones often armed below with 1–3 spines, with 2–4 spines in front and 1–3 behind on middle ones and with about 5–9 spines on hind femora below. *Head* with the interocular space in ♂♂, at narrowest part, about as broad as front part of tubercle or at least 2 times as broad as front ocellus, with the inner margins of eyes on each side of tubercle to point of divergence anteriorly at least 2 times as long as breadth of interocular space or almost as long as antennal joint 1, with the interocular space in ♀♀ about 3 to a little more than 3 times as broad as tubercle; antennae with

joint 1 about 3, or even slightly more, times as long as joint 2, with 3 longer than 1 and 2 combined, broadest nearer base, then gradually narrowed apically, being slightly more sinuous below; proboscis variable in length, 4½–6 mm. long. *Wings* vitreous to greyish hyaline, with the base, costal cell and first basal cell subopaquely yellowish to very pale yellowish brown, the basal comb black, the veins pale yellowish brown to even dark brownish, becoming paler



TEXT-FIG. 140.—Side view of hypopygium of ♂ *Systoechus mixtus* Wied.



TEXT-FIG. 141. — Side view of hypopygium of a var. of *Systoechus mixtus* Wied.

towards base, the squamae opaquely yellowish and fringed with whitish or pale yellowish hair. *Abdomen* with the sides tending to very obscurely reddish in some ♂♂, more often, however, entirely black, with narrow pallid margins on venter in both sexes. *Hypopygium* of ♂ (text-figs. 140 and 141) with the lateral process, on each side of aedeagus, narrow, flattened, strap-like, the apical part only very slightly broadened.

Locality.—Western Cape Province, S.E. Karoo, N.-Western Cape Province and Namaqualand. (British, Transvaal, Albany and South African Museums and also Imperial Institute.)

This species is extremely variable in size, colour of pubescence and number of black bristles on sides of abdomen. There is thus a tendency for the segregation of slight regional or local forms. This is more evident in the specimens from the S.E. Karoo and Eastern parts, in which some ♂♂ tend to have the femora more blackened

basally, the front ones unarmed below and with even more numerous black bristles on sides of abdomen towards apex in both sexes. Numerous specimens, from Namaqualand and the Western parts, again, have no black bristles on sides of body or have only 1 or 2 insignificant ones in the ♀♀.

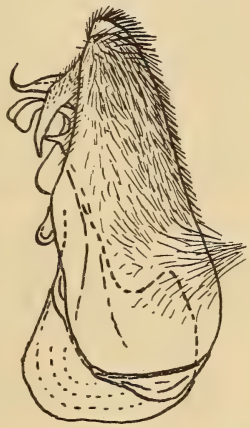
Some specimens of this species have been referred to *simplex* Lw. by Bezzi (p. 41, Ann. S. Afr. Mus., vol. xviii). The identity of *simplex*, however, is uncertain. It may be possible that *simplex* Lw. (p. 190, Dipt. Faun. Südafr., i, 1860) refers to the form of *mixtus* without any black bristles on abdomen, but according to Loew's description the interocular space in the ♂ is distinctly narrower ("merklich schmäler") than in *mixtus* and the pubescence towards apical part of venter is distinctly deeper yellowish as in the case of such species as *albidus*, *neglectus*, etc. Moreover, it is evident from Loew's comparative description that *simplex* belongs to this *albidus*-series, but has predominantly yellowish femora.

38 ♂♂ 29 ♀♀ *S. deceptus* n. sp.

(Syn.=*simplex* Bezz. and Bryant nec Lw., *albidus* Bezz. and Brunetti nec Lw. and *ctenopterus* Agr. Dept. nec Mik.)

Body black; scutellum, excluding black base and hind border, reddish to obscure reddish brown; legs yellowish, entirely yellowish in ♀♀, the femora in ♂♂, however, blackened or darkened to beyond the middle, the hind ones being entirely or predominantly black, with the apices of the hind tibiae and all the tarsi dark, becoming blacker towards the apices; pubescence whitish, very pale sericeous yellowish, creamy yellowish to straw-coloured yellowish on thorax in ♂♂, slightly or even distinctly more yellowish, even more golden yellowish in ♀♀, that on abdomen almost silvery whitish, creamy whitish to straw-coloured in ♂♂, becoming paler towards apex, distinctly more yellowish to pale golden or brassy yellow in ♀♀, with the hair laterally near base often slightly more yellowish tinted even in some ♂♂, that in front of wings slightly deeper yellowish in certain lights, but in some ♂♂ entirely sericeous whitish, the depressed pubescence on frons and sides of face whitish to pale sericeous whitish or yellowish, the bristly hairs on head above and face dense and black, the intermixed black ones on face in ♀♀, however, distinctly less dense and less conspicuous, those on antennae below in ♀♀ also predominantly yellowish and not black as in ♂♂, with the pubescence on body below silvery whitish to straw-coloured whitish or yellowish, slightly paler

in ♂♂ than in ♀♀, in ♀♀ more distinctly paler than that above, with the transverse bristles on abdomen on sides of segments 2–6 with dark blackish brown or black intermixed ones, more numerous and evident in ♀♀ and also more apparent towards apex, those discally above in ♂♂ entirely whitish, in ♀♀ very pale yellowish white to yellowish, but those on segments 5–6 also with a few or some dark or black ones on sides encroaching the midline, without any black bristly hairs or bristles on sides of last tergite in both sexes, with the pubescence on abdomen in ♂♂ finer and denser and the bristles fairly broadly interrupted along midline even in ♀♀; wings hyaline, with the extreme base, alula, costal and first basal cells subopaquely whitish to pale yellowish, the basal comb black, the veins pale brownish to brownish black, becoming paler towards base, but with the first longitudinal vein often dark brownish, the squamae opaquely whitish to pale yellowish white and fringed with whitish to creamy hair; halteres yellowish to pale yellowish brown, with whitish or ivory whitish knobs. *Head* with the interocular space in ♂♂, at narrowest part, as broad as front part of tubercle or about 2, or even more, times as broad as front ocellus, with the inner margins of eyes on each side of tubercle scarcely, or shorter than, 2 times the width of interocular space, or much shorter than length of antennal joint 1, with the space in ♀♀ on vertex about 3 to 3½ times as broad as tubercle; antennae with joint 1 about 3–4 times as long as 2, with 3 scarcely longer than 1 and 2 combined, broadest in basal fourth, gradually tapering apically and even subrod-like in some ♂♂, with the first terminal joint conical and usually shorter than slender style; proboscis slender in ♂♂, slightly stouter in ♀♀, about 3–5 mm. long, with the minute spinules below scarcely visible. *Legs* without apical spines above on front and middle femora or with only a very feeble spine or two on middle ones, all with pubescent hairs below basally, especially in ♂♂; front femora unarmed below; middle ones with about 1–3 spines in front and 1 or 2 behind; hind ones with about 4–8 spines below from near base to apex on outer side and about 2–5 smaller ones on inner side; claws comparatively slender, rather rapidly curved downwards apically and with the pulvilli reaching



Text-fig. 142.—Side view of hypopygium of ♂ *Systoechus deceptus* n. sp.

apices. *Hypopygium* of ♂ (text-fig. 142) with the lateral processes, on each side of aedeagus, gradually broadened apically.

Types in the South African Museum and paratypes in the Imperial Institute, British and Transvaal Museums, Agricultural Dept., Pretoria, and in Deutsches Entomologisches Institut.

Length of body: about 6–10 mm.

Length of wing: about 7–9 mm.

Locality.—O.F.S.: Bethulie; Caledon R. (Mus. Staff, Oct. 1935) (Types); Bloemfontein; Wepener (Lingnau, 27/12/24). Transvaal: Pretoria (van Son, 1932); (Lingnau, 18/11/23), (Ogilvie, 7–10/10/31); Daspoort (Swierstra, 10/3/1905), Scheerpoort, Rooiplaat, Woodb. Vill. and Wonderboom; Magalieskraal (Lingnau, 9/2/25); Barberton and Louis Trichardt (Imp. Institute and Transvaal Museum). S. Rhodesia: Matopo Hills, Zimbabwe and Hopefountain (Imperial Institute and Transvaal Museum). Zululand: Mfongosi. Natal: Weenen (Thomasset, 12/23, 3/24) (labelled as *simplex* by Bryant and as *albidus* by Brunetti). Karoo: Middleburg (Munro); Aliwal North and Somerset East (Turner) (latter in British Museum); Cradock, Burghersdorp and even as far as the Nieuwveld (Mus. Staff, Oct. 1935).

This widely distributed species appears to be variable in size and the colour of the pubescence and the development of the black bristles on abdomen, etc. Varying from the typical form there is a single ♂-paratype, from the Karoo, determined by Bezzi as *albidus* Lw., and some other paratypes from Cradock which are entirely silvery white-haired and without any or only a very few blackish bristles on sides of abdomen. Apart from the paratypes which have been determined as *simplex* and *albidus* by Bezzi, Bryant and Brunetti, there is even a ♀ ("Ac–P, 1480") from Pretoria in the Agricultural Department which, according to Mr. Munro, was referred to *ctenopterus* Mik. by the Imperial Institute of Entomology. As has already been stated elsewhere in this paper it is extremely doubtful whether any Palaearctic species of *Bombyliidae* are found south of the Sahara. This ♀-paratype differs from a ♀-specimen of *ctenopterus* Mik., determined by Austen and kindly loaned to me by Dr. Edwards, in not having distinctly mauvishly-tinged wings, dark or blackish scutellum, dark or blackish legs and also by having distinctly longer first antennal joints.

Superficially *deceptus* resembles *mixtus* Wied. and *silvaticus* n. sp., from the former of which it may be distinguished by the extensively blackened femora in the ♂♂, especially the hind ones, the slightly

broader interocular space in ♂♂, where the inner margins of eyes, on each side of ocellar tubercle to point of divergence anteriorly, are distinctly much shorter, scarcely, or not, 2 times as long as interocular space is broad, by the presence discally of some black bristles also on segments 5 and 6 in ♀♀, by the slightly longer first antennal joints, less slender apical part to third antennal joints, etc. From *silvaticus* it differs in not having the basal and costal part of wings so distinctly dark, in the distinctly broader interocular space in ♂♂, the much shorter inner margins of eyes on each side of tubercle, slightly shorter first antennal joints, more subrod-like third joints, extensively blackened femora in ♂♂, absence of black bristles on abdominal segments 6 and 7 above in ♂♂ and absence of distinct and conspicuous black bristly hairs or bristles on sides of last tergite in ♀♀. From *xerophilus* n. sp. it differs in having black bristles on sides of abdomen in both sexes and in not having an almost entirely black mystax in ♂♂ as in *xerophilus*.

Other species of *Anastoechus* or *Systoechus* which have been described from South Africa and which I have not seen or been able to identify, owing to unsatisfactory descriptions or poor figures, are:—

A. or *S.* ("*Bombylius*") *canus* Macq. (p. 94, Dipt. Exot. ii, 1840).

A. or *S.* ("*Bombylius*") *latifrons* Macq. (p. 94, Dipt. Exot. ii, 1840).

S. mentiens Bezz. (p. 68, The Bombyliidae of The Ethiopian Region, 1924).

S. simplex Lw. (p. 190, Dipt. Faun. Südafr., i, 1860).

Gen. *Eurycarenus* Lw.

(P. 186, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 78, The Bombyliidae of the Ethiopian Region, 1924.)

The chief generic characters separating this peculiar genus from *Bombylius*, *Systoechus* and all other genera in the *Homoeophthalmae* are the characteristic emargination on the hind margin of the eyes, the row of stout bristles on each side of frons in ♀♀, the well-developed terminal joints of the antennae, of which there are supposed to be three and only the first one well demarcated (the other two, which are more or less ill-defined, are together referred to as the last terminal joint in this paper), the well-developed bristles and macrochaetae on each side in front of the wings and the acutely pointed first posterior

cell of the wing. Other distinguishing characters are the pale greyish yellow, yellowish to deep golden or orange yellow depressed pubescence and fine darkish erect hairs on head, thorax, and scutellum above and the characteristic transverse bands of whitish or silvery white scaling and hairs on many of the segments of abdomen above as well as the presence of a central white band or row of white spots in some species. The *hypopygium* of the ♂♂, in members of this genus (cf. text-figs. 143–148), is also peculiar in having: (*a*) the dorsal apical part of basal parts produced forwards and upwards or obliquely upwards into a transverse flattened lobe or process the upper edge of which is usually black, curled over slightly backwards and armed with ctenate spines, which are more distinct, longer and arranged more comb-like on the outer edge or laterally, where the outermost ones are also often distinctly longer than the others (cf. enlarged front, lateral and dorsal views in the text-figures); (*b*) the outer lower margin of the basal parts in neck region has a very distinct tuft of long, stiff bristles and the dorsum of neck region is usually much flattened or even depressed; (*c*) the beaked apical joints are usually more or less shaped as shown in text-figures and especially in text-figs. 143–145 and 147, with the base above hollowly depressed, its apical part also flattened below and ending in a short claw-like spine.

The specific differences in this genus are, however, often very slight and, when the white scaling and hairs or markings on the abdomen are denuded, some of the forms are difficult to determine.

Key to the South African species of Eurycarenus.

1. (12) Eyes in ♂♂ very narrowly separated, very nearly in contact at narrowest part or actually in contact for a short distance; upper facets of eyes in ♂♂ always distinctly coarser than the lower ones; frons in ♀♀ with a row of not less than 3, usually 3 or more than 3, stout bristles on each side near base; flattened silvery white hair on sides of face apparently finer, less dense and not produced into a conspicuous and prominent silvery tuft; stalk at apex of first posterior cell with a tendency to be comparatively shorter and often very short, subequal to discal cross vein or more often distinctly shorter . . . . . 2.
2. (5) Eyes in ♂♂ in contact above for a little distance, about equal to or subequal to length of ocellar tubercle; eyes in ♂♂ with the upper facets markedly coarser than the lower ones; frons in ♂♂ with dense, erect, bristly hairs; interocular space in ♀♀ comparatively broad and distinctly broader than length of third antennal and terminal joints combined; first posterior cell of wing opening, or almost opening, on the hind border, being sessile

or with a very short stalk; extreme basal part, at extreme base of wing, of vein between second basal and anal cells with a conspicuous or distinct crest or tuft of dense hairs; hypopygium of ♂ (text-fig. 143) with the inner dorsal and apical part of neck region of basal parts produced into a narrow lobe-like process, the apex of which has a crown of backwardly directed spines, with the dorsum of basal parts, in neck region, covered with short, stiff and stoutish spine-like bristles, mostly on inner aspect, with the beaked apical joints compressed, their apical parts curved downwards claw-like, their lower parts with a row or tuft of comparatively long bristles, with the apical part of aedeagus distinctly curved upwards and the posterior basal strut well developed . . . 3.

3. (4) Pubescence on head and thorax above more greyish or very pale greyish yellow, with white hair on upper part of mesopleuron and all the stout bristles on upper posterior part of mesopleuron pallid or yellowish; a transverse band of flattened silvery white scales present on and occupying the entire sixth segment of abdomen above and without a tendency for silvery scaling along mid-dorsal line to form a continuous band on segments 2–5; transverse bristles on abdomen not markedly long and stout in ♀♀; joint 2 of the antennae comparatively less elongate and distinctly shorter than 1, in ♀♀ at least; the terminal joints combined equal to or subequal to or even slightly shorter than second antennal joint, the last terminal joint not being conspicuously long; proboscis shorter and less than 5 mm. long; smaller species, about 8½–9 mm. long . . . . . ♂ ♀ *sessilis* Bezz. (p. 512).

4. (3) Pubescence on head and thorax above more distinctly brassy or golden yellow, with yellowish golden or orange golden hairs on upper part of mesopleuron and with 1 or 2 of the stout bristles there blackish brown or black; segment 6 of abdomen above with black pubescence and without any transverse silvery band and with the silvery scaling along mid-dorsal line tending to form a continuous band from segments 2–5; transverse rows of bristles on abdomen longer and stouter; joint 2 of the antennae markedly elongate, nearly equal in length to 1; terminal joints combined distinctly longer than second antennal joint, the last terminal joint being conspicuously elongate; proboscis about 5 mm. long; larger species, about 10 mm. long . ♀ *propinquus* n. sp. (p. 513).

5. (2) Eyes in ♂♂ not in contact for a short distance, but always very narrowly separated; eyes in ♂♂ with the upper facets only slightly more coarse than lower ones; frons in ♂♂ with less dense bristly hairs; interocular space in ♀♀ relatively narrower and equal to or subequal to or even shorter than length of third antennal and terminal joints combined; first posterior cell always with a distinct and comparatively long stalk and never opening on the hind border of wing; extreme basal part, in extreme basal cell of wing, of vein between second basal and anal cells without any hairs or crest of hairs; hypopygium of ♂♂ with the dorsal apical part of neck region of basal parts either flattened, not raised, and with some transverse spines laterally or produced and raised into a broad transverse, upwardly or obliquely upwardly directed, flattened process, the upper edge of which is prominently spined laterally, with the dorsum of neck region of basal parts only with fine hairs and no

stiff spine-like bristles, with the beaked apical joints not markedly flattened laterally, shaped as shown in text-figs. 144–147, and with their apical part not markedly curved downwards and claw-like, ending only in a small hook and without any long bristles ventrally, with the slender apical part of aedeagus scarcely curved upwards, with the posterior or basal strut usually much smaller and not projecting very much beyond bases of basal parts . . . . . 6.

6. (7) Small species, 7–9 mm. long; greater part of, or entire, scutellum dark or black, only the posterior part being reddish; pubescence above on head, thorax and scutellum dull creamy yellowish, very pale greyish yellow or brassy yellow to yellowish, that on upper posterior part of mesopleuron and in squamal fringe whitish or pale creamy whitish to straw-coloured yellowish; discoidal cell with a tendency to be more acute and pointed apically; abdominal pattern of whitish scaling and hairs duller and more greyish white or creamy yellowish, with that transversely on segment 3 occupying the entire sides of the segment in form of a quadrangular patch on each side, thus broadly interrupted at middle; legs very dark, with the femora blackish and even the tibiae very dark blackish brown; hypopygium of ♂ with the dorsal apical process of basal parts much lower and more obliquely directed upwards, shaped as in text-fig. 144, lateral, front and dorsal views

♂ ♀ *minimus* Bezz. (p. 514).

7. (6) Larger species, more than 9 mm. long; greater part of scutellum ferruginous red or reddish, only the base being dark or blackish; pubescence above on head, thorax and scutellum golden yellow, deep golden or orange golden, that on upper posterior part of mesopleuron and on squamal fringe golden, golden yellow to orange golden; discoidal cell with a tendency to be less pointed and acute apically; abdominal pattern of white scaling and hair distinctly whiter and more chalky or snow white, with that transversely on segment 3 not broadly interrupted at middle into a broad quadrangular patch, either as a continuous transverse band or, when interrupted, occupied by a mid-dorsal band; legs either pallid and more yellowish brown or brownish or with the tibiae, at least, paler brownish; hypopygium of ♂♂ with the dorsal apical process of basal parts either not raised at all, only represented by some lateral spines or distinctly more raised, being higher and more perpendicular, shaped as shown in text-figs. 145–147 (showing lateral, front and dorsal views) . . . . . 8.

8. (9) Second antennal joints comparatively short, about half as long as 1 ; joints 1 and 2 combined about half as long as joint 3; first antennal joints without very long, stout and conspicuous bristles below and joint 3 without a conspicuous crest of short bristly hairs above basally and without 1 or 2 prominent bristly hairs above just before middle; eyes in ♂♂ more broadly separated, at narrowest part slightly broader than front ocellus; interocular space in ♀♀ about as broad as or even shorter than length of third antennal and first terminal joints combined; abdomen above with a distinct central band of flattened, silvery white scales and white hair, extending from base of abdomen or segment 2 to apex of 6; legs usually paler brownish, the tibiae often pale yellowish

brown; hind femora with comparatively fewer, 11–12, spines below, not beginning very near base, with a row of 3 or 4 spines, more conspicuous and rather close together above, just beyond the middle; hypopygium of ♂ with the inner dorsal margin and inner apical part of neck region of basal parts prominently flattened, the dorsal apical process itself vestigial, represented only by a slight transverse ridge, bearing very short and some longer spines laterally, with the outer margin of neck region also with a crest of short spines apically, with the dorsum of neck region very deeply depressed, with the slender apical half of aedeagus very long (cf. text-fig. 145, ventral, dorsal and lateral views) . . . . . ♂ ♀ *loewi* n. sp. (p. 515).

9. (8) Second antennal joints distinctly longer and more elongate, distinctly much more than half as long as 1; joints 1 and 2 combined distinctly more than half as long as 3; first antennal joints usually with very long, stout and conspicuous bristles below and third joint with a distinct crest of short bristly hairs above near base and often with 1 or 2 prominent and stouter bristly hairs above just before middle; eyes in ♂♂ very narrowly separated and almost in contact at narrowest part, distinctly narrower than front ocellus; interocular space in ♀♀ subequal to or even slightly longer than third antennal and terminal joints combined; abdomen above either without any central white band, only transverse ones being present on segments 2, 3, 4 and 6 or with only a short central band from segments 3–6; legs usually much darker, more often blackish, the tibiae also darker blackish brown to blackish; hind femora usually with more numerous, 14–21, spines below, beginning much nearer base as small ones, without a row of more prominent spines closer together above, these being more separated and of equal size; hypopygium of ♂♂ with the inner dorsal margin in neck region of basal parts not prominently flattened and with the dorsal apical process always prominently developed, distinctly horizontally and transversely raised and with a comb of longer and more prominent spines laterally, with the dorsum of neck region flattened or only slightly depressed, with the slender apical part of aedeagus very much shorter (cf. text-figs. 146 and 147) . . . 10.

10. (11) Abdomen above with a white transverse band of scaling and hairs across middle of segment 2, across base of 3 (much broadened laterally), on extreme sides only of 4 and on entire segment 6 and also with a broadish central band of white scaling from 3–6 or from base of 4–6; venter without a distinct and complete transverse band of white scaling and hairs on segment 6 in ♀♀; antennal joint 2 less elongate, shorter and not subequal to 1; antennal joint 3, in addition to crest of short hairs near base above, also with 1 or 2 longer and more prominent bristly hairs constantly present just before middle above in both sexes; frons in ♀♀ with about 4 or 5 stoutish bristles on each side and in both ♂♂ and ♀♀ with distinctly more golden yellow pubescence; legs more distinctly brownish or at least dark blackish brown; first posterior cell of wing slightly more acutely pointed; dorsal apical process of hypopygium in ♂ with the lateral spines slightly stouter, fewer and more aggregated and tuft-like, with slightly finer hairs on dorsum of basal parts (cf. text-fig. 146) . . . . ♂ ♀ *laticeps* Lw. (p. 519).

11. (10) Abdomen above with complete transverse bands of white scaling and hairs across middle of segment 2, base of 3 (also broadened laterally), across apical part of 4 (also broadened laterally) and entirely on 6, with a tendency to form a medial spot on 4 and often a very indistinct one medially on 5, but without any distinct central white band; venter with a very distinct transverse white band on segment 6 as well as some considerable white scaling on 7 in ♀♀, represented in ♂♂ by some intermixed white hairs on 6; antennal joint 2 markedly elongate, even in ♀♀, often equal to or subequal to joint 1; antennal joint 3 only with a crest of short bristly hairs above near base and without 1 or 2 longer and more prominent bristles in ♀♀, but often represented in some ♂♂; frons in ♀♀ with about 3–4 bristles on each side, rarely more, in both sexes with distinctly paler and more pale yellowish white pubescence; legs more constantly and uniformly black and tibiae also almost entirely dark; first posterior cell with a tendency to be less acutely pointed; the dorsal apical process of hypopygium in ♂ with the lateral spines comparatively more slender, more numerous and arranged more fanwise, with distinctly coarser erect hairs on dorsum of basal parts (cf. text-fig. 147) . . . . . ♂ ♀ *cingulatus* Hesse (p. 520).

12. (1) Eyes in ♂♂ very broadly separated, as broad as the comparatively broad ocellar tubercle, which is separated from the frons by a distinct and narrow transverse furrow or sulcus; upper facets of eyes in ♂♂ scarcely or not visibly coarser than lower ones; frons in ♀♀ usually with only 2, and rarely 3, bristles on each side; flattened silvery white scale-like hairs on sides of face broader and markedly denser, forming a comparatively conspicuous and prominent silvery tuft on each side; stalk at apex of first posterior cell with a tendency to be comparatively longer, usually distinctly longer than discal cross vein

♂ ♀ *dichopticus* Bezz. (p. 522).

(Large and small forms.)

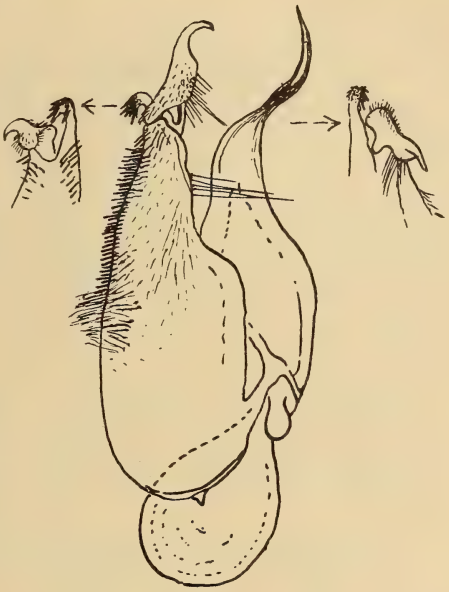
The only other two species from Africa, namely *melanurus* Bezz. from Zanzibar and *albicans* Bezz. from Gambia and described in The Bombyliidae of the Ethiopian Region, pp. 80 and 82, are unknown to me.

E. sessilis Bezz.

(Pp. 55 and 166, Ann. S. Afr. Mus., vol. xviii, 1921.)

The following notes may be added to Bezzi's description of this species:—Pubescence on frons, occiput, thorax and scutellum above dull greyish yellow in ♀♀, paler and even less yellowish in ♂♂ and, in ♀♀, more yellowish on frons and sides of mesonotum; scutellum often with the hind part dull reddish or ferruginous; sides of abdomen, especially on segments 2–4, yellowish red to reddish; silvery flattened and depressed scale-like hairs, when not entirely denuded, occur on sides of face, genae, along posterior margins of eyes, on mesopleuron, coxae and as transverse bands apically across segments 2 and 3, trans-

versely across apical part medially of 4, entirely on 5 and 6 and on basal half of venter; pubescence on mesopleuron is whitish or entirely white, not yellowish or pale golden yellow, only the bristles being yellowish; flattened scale-like hairs on scutellum pale greyish white and dull slaty or bluish grey on parts of abdomen above not occupied by the silvery scaling; some transverse bristles on segment 2 laterally often pallid and not entirely blackish brown or black; head with the bristly hairs on frons in ♂♂ comparatively very dense and more often blackish brown, also denser on sides and front of face in ♂♂, with antennal joint 2 elongate and more than half as long as 1, both joints combined much more than half the length of 3 and, in ♂♂, with denser dark brownish or blackish brown bristly hairs, with the interocular space in ♀♀ a little longer than joint 3 and terminal joints combined, with the terminal joints combined subequal to or slightly shorter than second antennal joint. *Hypopygium* of ♂ (text-fig. 143) characterised by the stiff, stout and short spine-like bristles on dorsum of neck region of basal parts, the narrow lobe-like dorsal apical process of basal parts, bearing a crown of backwardly directed spines, the laterally compressed claw-like beaked apical joints, the ventral parts of which are provided with a conspicuous tuft or row of long bristles, the distinctly upwardly curving slender part of the aedeagus, etc.



Text-fig. 143.—Side view of hypopygium of ♂ of *Eurycarenus sessilis* Bezz.

In the Rhodesian and South African Museums.

Locality.—S.E. Africa, S. Rhodesia, Bechuanaland and Ovamboland.

1 ♀ *E. propinquus* n. sp.

This solitary ♀-specimen is so near the ♀ of *sessilis* that it may almost be considered as a variety of *sessilis*. It differs, however, in

being comparatively larger, in having the depressed pubescence on frons, occiput and thorax above more distinctly golden yellow; the flattened, silvery scale-like hairs apparently denser on sides of face, genae, along posterior margins of eyes and on mesopleurae, also distinctly present on sides of scutellum, with those forming the white transverse bands on abdomen above present as apical transverse bands on segments 2 and 3 (very broad laterally on 3), a medial spot on 4, an entire band on 5, but entirely absent on 6, with a tendency for the silvery scaling along mid-dorsal line to form a continuous band from segments 2–5; pubescence on upper posterior part of mesopleuron golden or orange yellow and not white or whitish, with 1 or 2 distinct black bristles on the upper posterior part as well; transverse bristles on abdomen stouter, stronger, longer and better developed; head with 4 stout bristles on each side of frons, with antennal joint 2 comparatively more slender and slightly longer, nearly equal in length to joint 1, with the terminal joints combined distinctly longer than antennal joint 2, the last terminal joint comparatively elongate, with the proboscis longer, about 5 mm. long.

Type in the Transvaal Museum.

Length of body: about 10 mm.

Length of wing: about 10½ mm.

Locality.—S. Rhodesia: Sawmills (Stevenson, 4/2/1926).

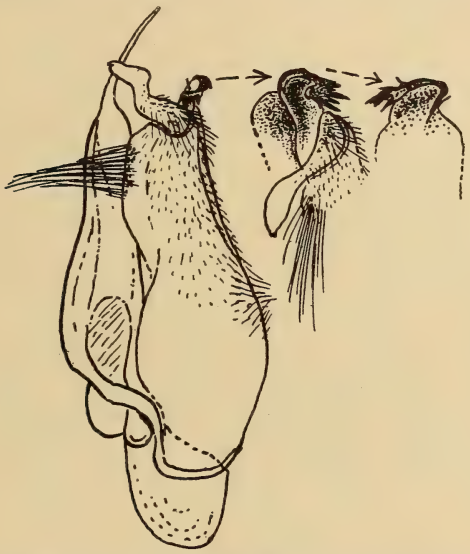
E. minimus Bezz.

(P. 166, Ann. S. Afr. Mus., vol. xviii, 1921.)

Of this small species, which has a superficial resemblance to a Muscid or Tachinid, there are several denuded ♂♂ and ♀♀ from S.W. Africa in the South African Museum. In addition to Bezzi's description of the type-♂, the following points may be added:— Interocular space in ♂♂ very narrow, the inner margins of eyes, at narrowest part, separated by a space about as broad as front ocellus; antennae with joint 1 about, or even less than, or even a little more than, 2 times as long as 2, joint 3 with only a few inconspicuous, short, bristly hairs above near base; scutellum not entirely black, but with a dull reddish or ferruginous tint posteriorly or in apical half; hind margins on sides of abdominal segments and extreme sides above reddish or dull yellowish red; transverse rows of bristles on abdomen above not complete, but interrupted along midline as in other species of this genus, but more so towards apex; discoidal

cell of wing with a tendency to be distinctly acute apically, the apical cross vein being very short.

The undescribed ♀, judging from the remains of white scaling and hairs on the abdomen of denuded specimens, has the same pattern as the ♂; interocular space broader than length of third antennal joints, about as broad as or subequal to or even a little longer than length



TEXT-FIG. 144.—Side view of hypopygium, front and dorsal views of the ctenate process of ♂ *Eurycarenus minimus* Bezz.

of third and terminal joints combined; frons with a row of 3 or 4, usually 3, bristles on each side near base; hind femora in both sexes with about 6–9 spines below, those on front femora small and inconspicuous. *Hypopygium* of ♂ as shown in text-fig. 144, with the dorsal apical ctenate process in lateral, front and dorsal views.

Locality.—S.W. Africa: Damaraland and Kaokoveld. (In South African and British Museums.)

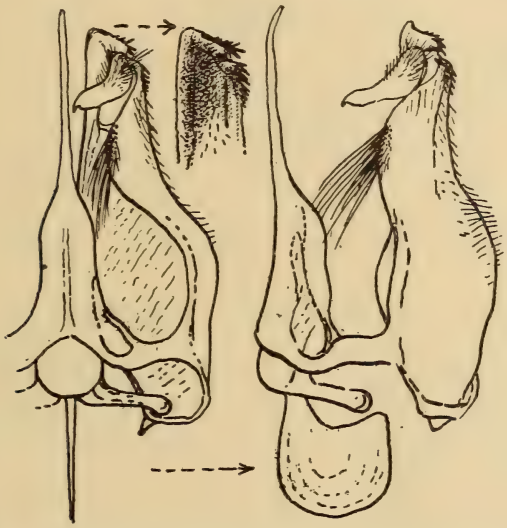
2 ♂♂ 5 ♀♀ *E. loewi* n. sp.

(Syn.=*laticeps* Bezz. in part nec Loew.)

Body black; posterior calli and apical half or more of scutellum ferruginous red; extreme apices of terminal styles on terminal antennal joints pallid to pale brownish; palps brownish, with darker apical halves; sides of abdomen above and, to a certain extent,

narrow hind margins sienna brownish to brown; legs with the integument yellowish brown to sienna brown, with the last 3 tarsal joints and apical two-thirds of claws blackish to black, with the femora and tibiae densely white-scaled, with the inner apical parts of front ones, the inner apical and front halves of middle femora, the apices of hind ones and often the inner lower surfaces of front and middle tibiae darker brownish to deep brownish-scaled; pubescence on frons, occiput, thorax and scutellum above as in *laticeps* Lw. and other species, pale brassy yellowish to deep golden yellowish, but with the fine erect hairs on mesonotum dark blackish brown, the bristles on occiput paler and more yellowish white to pale yellowish, the bristly hairs on ocellar tubercle and the shorter intermixed ones on sides of vertex blackish brown to black, the frontal bristles in ♀♀ and bristly hairs on frons laterally in ♂♂ and ♀♀, the bristles on antennal joints 1 and 2 and the longer bristles, intermixed with yellowish hairs, on face in front blackish and denser in ♂♂, the yellowish ones in ♀♀ being more numerous, with some bristles on antennal joints below also yellowish, the hair on face laterally, on genae and along hind margins of eyes almost silvery white as in other species, that on head below and thorax below white, but becoming more yellowish towards upper parts of mesopleuron, where it is distinctly yellow to golden yellowish, the bristles on thorax and scutellum dark blackish brown to black, the mesopleural ones, however, yellowish to golden, with whitish hairs on sides of tergite 1, a broadish transverse band of white hair and silvery scaling across base of 2, a broad one on 3 becoming narrower and confined to base discally but occupying the entire sides, a conspicuous transverse white patch laterally on 4, scarcely reaching the middle above, and an entire band across 6 of apparently longer white hair but with only a few darker hairs near midline above, with a more or less constant and distinct central band above along midline of white hairs and more silvery scaling from base of segment 2 to end of 6, where it is also slightly broader, with black or deep blackish brown hair and corresponding black scaling on rest of abdomen, the apical part also entirely black-haired, with the transverse rows of bristles on abdomen above black and longer towards apex, with some pallid or yellowish ones laterally on segment 1 and a few on 3, with dense white scaling and hairs on sternites 1–4, the transverse bristles also pale or whitish, with the pubescence in apical half black and the bristles also black; wings vitreous hyaline as in other species, the costal cell and the base being subopaquely pale yellowish brown and the extreme base brownish to brown, with the

veins brownish, becoming paler towards base, with the squamae opaquely yellowish and the fringe deep yellow. *Head* with the interocular space in ♂♂ narrow, at narrowest part, however, not touching but separated by a space slightly broader than front ocellus, in ♀♀ about as broad as length of third antennal and first terminal joints combined, or about 3½ times as broad as tubercle; eyes in ♂♂ with the upper facets distinctly coarser than the lower ones; frons



Text-fig. 145.—Half of ventral view and side view of hypopygium of ♂ *Eurycarenus loewi* n. sp.

in ♀♀ with a row of 3 stout bristles on each side basally; antennae with joint 1 about 2 times as long, or very slightly less, as the length of 2, with 1 and 2 combined about equal to half length of 3, with joint 3 apparently smooth, without any distinct crest or row of short bristly hairs above near base, broadest near base and tapering gradually to apex, with the terminal joints combined distinctly longer than antennal joint 2; proboscis about 3½–4 mm. long. *Legs* with about 4–6 small spines on outer upper aspect of front femora and about 3 or 4 on lower inner aspect; middle femora with about 3 or 4 on outer upper apical aspect and 2 or 3 longer ones on inner lower apical aspect; hind ones with about 11–12 long and shorter spines below, more or less irregularly arranged in two rows, with 3 or 4 distinct spines just beyond middle above, more or less close together and 2 or 3 much longer ones at apex. *Hypopygium* of ♂

(text-fig. 145) characterised by having the apical half of basal parts much depressed, almost groove-like above in neck region, by the flattened inner dorsal margin and apical part of neck region, by the feeble development of the dorsal apical process, which is only represented as a slight transverse ridge bearing a few longer spines laterally (to right of left-hand figure), by the crest or row of distinct spines along apical part of outer margin of neck region and by the very long, slender apical part of aedeagus.

Holotype in the Transvaal Museum, allotype in the South African Museum.

Length of body: about 9½–12 mm.

Length of wing: about 10–12 mm.

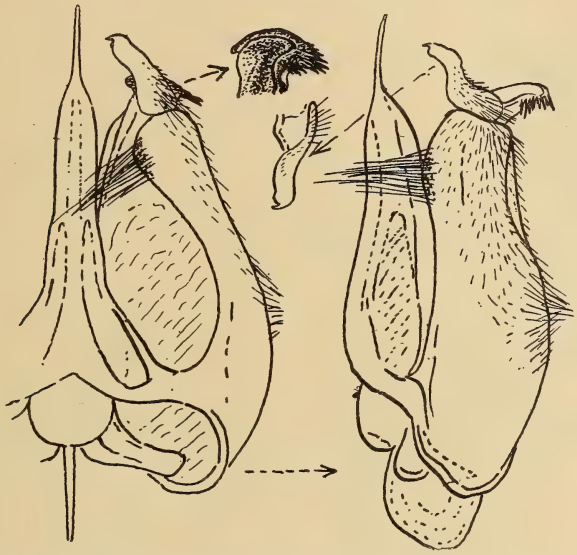
Locality.—S. Rhodesia: Sawmills (Stevenson, 10/12/26) (Holotype), (Stevenson, 22–27/12/23) (Allotype). Bechuanaland: Morokweng (Bain, 1908) (labelled as *laticeps* by Bezzi). Zululand: Mfongosi (Jones, 12/1913). S.W. Africa: Ovamboland; Nuragas (Lightfoot, 1/1919).

A ♂-specimen in the South African Museum from Morokweng was labelled by Bezzi as *laticeps* Lw. (*See* p. 55, Ann. S. Afr. Mus., vol. xviii). From the specimens before me it is evident that this species is specifically distinct from *laticeps*. A careful comparison with Loew's description of *laticeps* (p. 187, Dipt. Faun. Sudäfr., i, 1860) and his figure on Plate II shows that this species has a different pattern of white scaling and hairs on the abdomen. In fact it differs from *laticeps* in having a constant and distinct central band of white scales and hair along mid-dorsal line of abdomen above, which extends from base of segment 2, or the scutellum, to 6 (present only on 4–6 in *laticeps*); scutellum is distinctly less extensively reddened, the black base being distinctly more extensive; legs distinctly paler and often almost yellowish brown, with distinctly fewer spines below on hind femora; head with the interocular space in ♂ slightly broader and broader than the front ocellus (much narrower in *laticeps*), in ♀ with the space about as broad as length of antennal joint 3 and first terminal joint combined, with joint 2 much shorter and 1 and 2 combined only about half the length of joint 3 (more than half in *laticeps*), without 1 or 2 longish bristles or a crest of short bristles before middle above on joints 3 and without very long bristles below on joints 1 and 2, with usually only 3 and not 4 or 5 bristles on each side of frons in ♀.

E. laticeps Lw.

(P. 187, Dipt. Faun. Südafr., i, 1860, Tab. II, fig. 7.)

Loew described a ♀ from Mozambique and subsequently referred a ♂-specimen, from the O.F.S. under the name of *latifrons*, to this species (*see* p. 13, Wien. Entom. Monat., vii, 1863). Bezzi in his



TEXT-FIG. 146.—Half of ventral and side views of hypopygium of ♂ *Eurycarenus laticeps* Lw.

monograph (pp. 79 and 80 in The Bombyliidae of the Ethiopian Region) described the ♂ more fully and also gives a long list of localities for this species. In addition to Loew's and Bezzi's descriptions, the following may be added:—Scutellum is predominantly red or reddish, only the narrow base being blackish; legs with the integument very dark blackish brown to blackish, rarely paler as in *loewi*; central white band along mid-dorsal line of abdomen above never extending forwards beyond base of segment 3. *Head* with the interocular space in ♂♂ very narrow and at narrowest part almost touching and always narrower than front ocellus, broader than length of third antennal and first terminal joints combined in ♀, with a row of 4 or 5 stout bristles on each side of frons in ♀, with joint 1 of the antennae less than 2 times as long as 2, with joint 2 elongate and 1 and 2 combined distinctly more than half the length of 3 and with a row or crest of short bristles above in basal half on 3 of which 1 or 2 just

before the middle are longer, stouter and more conspicuous, especially in the ♀, with the terminal joints combined shorter than joint 2 of the antennae, with the proboscis about 4–6 mm. long (slightly longer than in *loewi* n. sp.). *Legs* with a variable number of spines on femora; front femora with about 2 or 3 small ones below apically in front and 4 or 5 on outer apical aspect above; middle ones with 3–5 longish spines below and a variable and irregular number, 4–8, above; hind ones with about 14–21 long and short spines in more or less two irregular rows below, of which the apical ones are longer, and with about 6–8 short separated spines above in apical half. *Hypopygium* of ♂ (text-fig. 146, showing ventral and lateral views, front view of dorsal apical process and dorsal view of beaked apical joint).

Locality.—Natal, Zululand, Portuguese East Africa, Transvaal, S. Rhodesia, Bechuanaland and S.W. Africa. (In the Transvaal. Durban and South African Museums.)

10 ♂♂ 15 ♀♀ *E. cingulatus* Hesse.

(P. 167, Ann. Trans. Mus., vol. xvii, 1936.)

Superficially this species is very near *laticeps* Lw., with which it may be easily confused, especially if the transverse bands of white scaling and hairs have been rubbed off. Compared with *laticeps*, it differs in having the base of scutellum usually more extensively darkened, in having more constantly dark or blackish legs, even the tibiae being more constantly blackish; abdomen above with a complete transverse band of white scaling and hairs across middle of segment 2, a complete one across base of 3 (much broadened laterally), a complete band across apical margin of 4 which is not broadly interrupted medially but is also broadened laterally and a complete band occupying the entire sixth segment, with some of the transverse bristles, as in *laticeps*, on sides of segments 3 and 4 pallid like those on sides of 1, with the transverse bristles on 2–3 in ♀ comparatively shorter than in *laticeps* and in ♂ distinctly shorter, being scarcely longer than the hairs and also much shorter than in ♀, with a distinct and complete transverse band of white scaling and hairs on the sixth ventral segment and, to a great extent also, on 7 in the ♀, which in the ♂ is usually represented by some white intermixed hairs only on segment 6, without any constant white central band above on segments 3 or 4–6 as in *laticeps*, but often with a distinct spot medially on 4 and a very evanescent one on 5 in some specimens. *Head* with the interocular space in ♂, at narrowest part, often slightly broader

and almost subequal to width of front ocellus, with usually 3 or 4 stout bristles on each side of frons in ♀ and also with a tendency for pubescence on frons of both sexes to be paler, more whitish and less extensively golden, with joint 2 of the antennae distinctly more elongate, almost subequal to 1, with 1 and 2 combined also comparatively and distinctly longer than in *laticeps*, usually without 1 or 2 prominent and longer bristles above on joint 3 in ♀ and rarely present in ♂, with the proboscis about 5 mm. long. *Wings* with a tendency for the first posterior cell to be less acutely pointed apically. *Legs* with 6–9 small spines, mostly irregularly arranged, on front femora above and more or less 2–4 small ones below, with about 7–13 irregularly arranged spines on middle femora above, of which one in apical outer aspect may be stouter and longer, and from 3–5 long and short ones below, with a row of about 8–11 separated spines above in apical half of hind femora, of which one is usually long and well developed at apex, and with about 14–20 long and short spines below in more or less two irregular rows. *Hypopygium* of ♂ as shown in text-fig. 147, with enlarged front and dorsal views of the dorsal apical ctenate process on basal parts.



Text-fig. 147.—Side view and enlarged parts of hypopygium of ♂ *Eurycarenus cingulatus* Hesse.

Holotype-♂ in the Transvaal Museum, allotype-♀ in the South African Museum.

Length of body: about 11½–12½ mm.

Length of wing: about 10–12 mm.

Locality.—Bechuanaland: Damara Pan (V.-L. Kal. Exp., 15–21/4/1930) (Types); Kaotwe (V.-L. Kal. Exp., 8–12/4/30); Gemsbok Pan (V.-L. Kal. Exp., 23/4–5/5/30). S. Rhodesia: Sawmills (Stevenson, 4/1923).

This species is easily recognised and distinguishable from all other known species of this genus by the presence of 4, more or less, constant

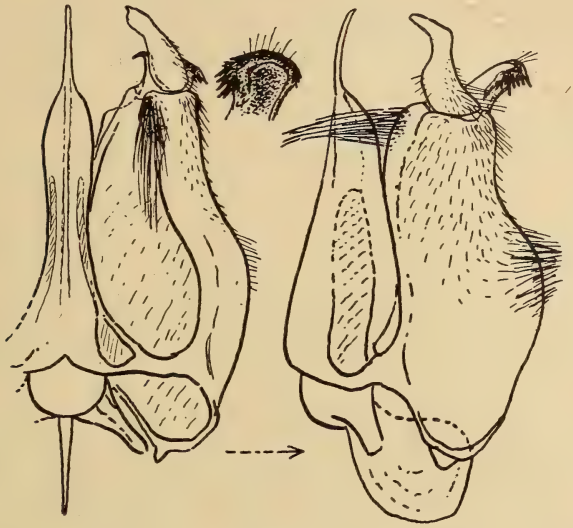
and complete bands of white scaling and hair on the abdomen above, giving it a distinct resemblance to some members of *Anthophora*-bees. It may, however, be confused with *melanurus* Bezz. (pp. 80 and 81, The Bombyliidae of the Ethiopian Region, fig. 6) from Zanzibar. According to the description, however, *melanurus* differs from the above in having only 3 white transverse bands on the abdomen above, of which that on segment 4 is broadly interrupted medially and also in having no white band on segment 6, the entire apical part being black-haired. The ♂-specimens from Sawmills appear to be transitional between *cingulatus* s. str. and *laticeps*, in that they agree with the former in having 4 complete bands of white pubescence on abdomen and in the very slightly more separated eyes and paler, more whitish-haired frons. With *laticeps* they appear to agree in having a larger spot of white scaling and hair on segments 4 and 5 medially, in often having prominent stoutish bristles just before middle of third antennal joint. The hypopygium of the ♂ also shows mixed characters in having the lateral spines on the dorsal apical process of basal parts more or less in between that of *laticeps* and the typical *cingulatus*.

E. dichopticus Bezz.

(P. 83, The Bombyliidae of the Ethiopian Region, 1924.)

This species is easily recognisable by the widely separated eyes in the ♂♂, the presence of only 2 stout bristles on each side basally on the frons in the ♀♀, the more conspicuous and distinct tuft of flattened, silvery white, scale-like hairs on each side of the face, the dark or blackish scutellum, paler and more greyish brassy pubescence on thorax and scutellum above, much paler and more yellowish white or creamy pubescence on posterior upper part of mesopleuron, the paler and more creamy yellowish fringe to the squamae, the distinctive pattern of white bands on the abdomen above, the transverse rows of almost entirely white or whitish bristles on venter of ♀♀ and the entirely black legs. In all these characters it can be easily separated from other species, such as *laticeps* Lw., *loewi* n. sp. and *cingulatus* Hesse, which superficially resemble it. The species seems to be variable in size, both large and small forms occurring in the same region. Apart from the large typical form, there are before me some ♂♂ and ♀♀, about 7–9 mm. long, with a wing-length of about 6½–9 mm., which constitute a definite small form, with distinctly less yellowish and even more greyish yellow pubescence on the thorax

and apparently fewer spines on hind femora below. *Hypopygium* of ♂ as shown in text-fig. 148.



TEXT-FIG. 148.—Half of ventral view, side view, and dorsal view of spined apical process of hypopygium of ♂ *Eurycarenus dichopticus* Bezz.

Locality.—East, West and Central Africa (according to Bezzi), S.W. Africa and the Kaokoveld. (In the British and South African Museums.)

Gen. *Sisyrophanus* Karsch.

(Entom. Nachricht xii, 53, 6, 1886; Bezzi, p. 84, The Bombyliidae of the Ethiopian Region, 1924.)

This genus, which Karsch placed near *Eurycarenus*, also appears to be related to genera of the *Doliogethes* group. Generically it may be recognised by the smooth, shining, conically prominent face, which is separated from the frons by a distinct and markedly groove-like transverse furrow or depression, visible in front of antennal bases in ♀♀, but more on sides along front margins of eyes in ♂♂, by the smooth and shining frons in ♀♀ which is also more or less slightly transversely depressed, the depression more apparent owing to the transversely raised ridge-like prominence at level of antennae and also across vertex, by the somewhat blunt and comparatively thickened third antennal joints, which show no separately visible terminal

joints but only a style, by the acutely pointed first posterior cell of the wing which is sessile on the hind border or provided with a very short stalk, by the discal cross vein beyond the middle of discoidal cell, the absence of a distinct basal comb, the much reduced, vestigial or very narrow alula, by the absence of distinct stiffer bristles or macrochaetae on body even in ♀♀, by the bare metapleurae and the absence of spines on the femora below.

From *Eurycarenus* it differs in not having the eyes emarginate behind, in not having separately visible terminal joints to third antennal joints, in the absence of stout bristles on the body, no basal comb to wings, the discal cross vein beyond middle of discoidal cell, the very narrow and reduced alula, no pattern of transverse bands of dense white scaling and hairs on abdomen and no spines on hind femora below. From *Dischistus* s. str. it may at once be distinguished by the acutely pointed first posterior cell, which does not open broadly on hind border of wing, the smooth and shining face and frons, the former of which is separated from the frons by a deep and narrow sulcus and by the much shorter pubescence, which is not dense and brush-like on face. From the other species, referred to *Doliogethes*, it differs in not having any spines on hind femora below, in having an acutely pointed first posterior cell, not opening on hind border of wing, a brilliantly shining and smooth face and frons, the former separated by a sulcus from frons (a character not found in the smooth-faced species of *Chasmoneura*), in not having a fairly well-developed and lobe-like alula and distinct bristles on body, etc. *Hypopygium* of the ♂ (text-fig. 150), based on that of the two species seen by me, resembles that of *Dischistus* s.str., with the beaked apical joints elongate, slightly curved and directed outwards, more or less flattened or depressed above, the edges of dorsum being slightly carinate, the apex acute; aedeagus well developed and elongate, without any ventral aedeagal process below in these two species, but with a prominent posterior aedeagal strut on each side of basal strut; lateral and basal struts comparatively feebly developed.

Judging from the extensive Bombyliid material before me, this genus is not represented in South Africa or the Union. All the species described by Bezzi and Karsch appear to be East and Central African species. Only two forms appear to occur in Southern Rhodesia and Bechuanaland, and these may be separated as follows:—

1. (2) Legs with the tibiae pale ochreous yellow, the fine scaling on the tibiae being pale yellowish, with the bases of tarsi also predominantly yellowish;

eyes in ♂♂ in contact above for a distance at least 2 times as long as ocellar tubercle, the eyes also distinctly more dilated and broadened below and, when viewed from in front, more rapidly narrowed towards tubercle, the ocellar part being more conically prominent; antennae with joint 3 distinctly longer, much longer than 1 and 2 combined, more distinctly deeply excavated apically on the side, the style being situated laterally on the outer side (text-fig. 149, *a*) and with shorter and less dense hairs on joint 1; pubescence, on the whole, more straw-coloured yellowish above in both sexes and apparently slightly shorter and sparser on abdomen above; hypopygium of ♂ (text-fig. 150)

♂ ♀ *minor* Bezz. (p. 525).

2. (1) Legs with the tibiae distinctly darker, dark brownish to blackish, due to distinctly black or fine dark scaling, with the tarsi also dark or blackened even basally; eyes in ♂♂ in contact above for a shorter distance, less than 2 times length of tubercle, slightly less dilated or expanded below and also less narrowed towards tubercle, the ocellar region thus less or not conically prominent; antennae with joint 3 distinctly shorter, only a little or scarcely longer than 1 and 2 combined, not or only imperceptibly excavated apically, the style thus practically terminal (text-fig. 149, *b*) and with distinctly longer and denser hairs on joint 1; pubescence, on the whole, paler and more distinctly whitish above even in ♀♀, that on body below also more markedly white, even in ♀, and in both sexes apparently denser and slightly longer on abdomen above

♂ ♀ *ogilviei* n. sp. (p. 526).

S. minor Bezz.

(P. 87, The Bombyliidae of the Ethiopian Region, 1924.)

Of this species there are 1 ♂ and 5 ♀♀ in the collections before me, and the specimens agree with Bezzi's description of 2 ♂♂ from North Rhodesia. The ♀, which appears not to have been recorded or described before, has the interocular space scarcely broader than length of antennal joints 2 and 3 combined or a little more than 3 times as broad as tubercle; frons slightly transversely depressed, the depression being more apparent owing to the slightly prominent transverse ridge-like and raised parts in front and across vertex, with black bristly hairs on sides of vertex as well as on tubercle; the shining face broader than in ♂, slightly more convex and less pointed than in ♂; pubescence, on the whole, appearing less whitish than in ♂ below.

The ocellar region in ♂ is somewhat conically prominent, the head in front thus distinctly narrowed to tubercle, with the eyes in ♂ comparatively large, somewhat dilated below and thus extending beyond level of head below, this latter region appearing sunk in, in contact above for a comparatively long distance, at least 2 times as long as tubercle, with the facets in slightly more than upper half much coarser

than in lower part and obliquely well marked off from lower ones. The antennae in both sexes with joint 3 (text-fig. 149, *a*, right one of ♀) distinctly longer than 1 and 2 combined, somewhat obliquely excavated at apex on outer side, when viewed from above, with the style situated on outer side of excavation and not terminal to joint. *Hypopygium* of ♂ (text-fig. 150) with the outer apical angles of basal



TEXT-FIG. 149.
(*a*) Right antenna of ♀ *Sisyrophanus minor* Bezz.
(*b*) Right antenna of ♀ *S. ogilviei* n. sp.



TEXT-FIG. 150.—Side view and half of ventral view of hypopygium of ♂ *Sisyrophanus minor* Bezz.

parts somewhat acutely prominent and the dorsum of basal parts sparsely covered with short and fine hairs; beaked apical joints quite half as long as basal parts, their apices acute and spine-like, directed downwards and slightly outwards, with the upper surface slightly depressed and bounded by slight ridges and with the posterior aedeagal struts projecting posteriorly beyond bases of basal parts, strap-like on each side of basal strut.

Locality.—N. and S. Rhodesia and Bechuanaland. (In the Imperial Institute, Transvaal and South African Museums.)

2 ♂♂ 3 ♀♀ *S. ogilviei* n. sp.

This species is superficially almost indistinguishable from *minor* Bezz., differing only in the essentials given in the key above. The pubescence above is almost entirely white in the ♂♂ to very pale

straw-coloured yellowish in ♀♀, that on abdomen above in the ♀-allotype, however, slightly very pale sericeous yellowish in certain lights, that on body below in both sexes white, but apparently slightly more so in ♂♂; legs dark, the femora black, the tibiae dark brownish to blackish, due mostly to fine blackish scaling and the tarsi, on the whole, also entirely dark or blackish. *Wings* glassy hyaline, with the base and costal cell subopaquely pale yellowish white, with the veins yellowish brown to brownish, becoming paler towards base, the apically acute first posterior cell with a very short stalk; halteres yellowish and with whitish knobs. *Head* with the eyes in ♂♂ in contact above for a distance about $1\frac{1}{2}$, or even slightly less, times as long as tubercle, with the facets, in slightly more than upper half, much coarser than those below and obliquely well marked off from lower ones, with the interocular space in ♀♀ much broader than antennal joints 2 and 3 combined, though also a little more than 3 times as broad as tubercle; shining frons in ♀ as in *minor* and also with black bristly hairs laterally on vertex in addition to those on tubercle; antennae with joint 1 also black-haired, but with the hairs distinctly longer and denser, especially on the outer side, than in *minor*, about 3–4 times as long as 2, with joint 3 (text-fig. 149, *b*, right one of ♀) distinctly shorter than in *minor*, only a little longer than 1 and 2 combined and often almost subequal to them, also comparatively thick and scarcely narrowed basally, without a distinct excavation at apex and with the style terminal or almost terminal; proboscis about $3\frac{1}{2}$–4 mm. long. *Hypopygium* of ♂ practically the same in structure as that of *minor* (cf. text-fig. 150).

Types in the Imperial Institute of Entomology.

Length of body: about $5\frac{1}{2}$–$6\frac{1}{2}$ mm.

Length of wing: about 5–6 mm.

Locality.—S. Rhodesia: Matopo Hills (Mrs. Ogilvie, 4/1932) (Types); (Mr. Ogilvie and Miss Mackie, 4/1932).

Gen. *Dischistus* Lw.

(P. 45, Neue Beitr., III, ix, 1855; p. 192, Dipt. Faun. Südafr., i, 1860; Bigot, pp. 322 and 337, Ann. Soc. Ent. Fr., lxi, 1892; Becker, p. 494, Ann. Mus. Zool. St. Petersb., vol. xvii, 1912; Bezzi, p. 89 (Group 1), The Bombyliidae of The Ethiopian Region, 1924.)

Numerous species, from the Palaearctic and Ethiopian regions and from Asia, have been referred to or have been described as *Dischistus*

by Loew, Bezzi, Brunetti and other authors. From the South African species before me it is evident that all these species described as or referred to *Dischistus* do not all belong to one genus. From a taxonomic point of view the generic identity of *Dischistus* thus appears to be uncertain. Loew in 1855 (p. 45, loc. cit.) gave a very short and comparative description of this genus, which he compared with *Legnotus* Lw., *Platamodes* Lw., *Scinax* Lw. and *Sparnopolius* Lw. No genotype for this genus was, however, designated, but *Bombylius mystax* Wied. was the first species to be listed by him in his account of the various species which he believed to belong to this genus. Becker, however, in his revision of the genera of Bombyliidae in 1912 (p. 494, loc. cit.) designated *mystax* Wied. as the genotype of *Dischistus*. Unfortunately, in 1920 Brunetti in his paper on the Indian Bombyliidae (p. 273, Faun. Brit. Ind. Dipt., vol. i) ignored Becker's genotypic designation and himself designated the Palaearctic *minimus* Schrk. as the genotype. According to the rules of taxonomy there is no doubt that Becker's designation thus has priority, and *Bombylius mystax* Wied. must be considered as the genotype of *Dischistus* even if it be generically different from most of the other species which have thus far been lumped together as belonging to *Dischistus*. Subsequent authors, not being acquainted with the distinguishing characters of *mystax*, referred both Palaearctic and Ethiopian species, which generically agreed with *minimus* but which markedly differed from *mystax*, to *Dischistus*. In this paper Becker's designation is adhered to and *mystax* is taken as the typical representative of *Dischistus*. Even from Loew's short description it is to a certain extent apparent that he had *mystax* uppermost in his mind, and such statements as " . . . die Körperbehaarung lang, besonders die des Kopfs, vorzüglich bei dem Männchen; . . . Die vordere Wurzelzelle ist stets viel länger als die hintere" and again "Der Mehrzahl der südafrikanischen Arten fehlen die Stachelborsten auf der Unterseite der Hinterschenkel," . . . are applicable to *mystax*. If *mystax* be taken as the genotype it is obvious that *Dischistus*, as a genus, is much more circumscribed than was suspected by Loew himself. Strictly conforming to *mystax*, there are only two known South African species, namely *capito* Lw. and *plumipalpis* Bezz. One other South African species, namely *hirticeps* Bezz., of which the type is in the South African Museum, is generically identical with the *mystax*-series but differs only in having the first posterior cell in the wings closed and stalked instead of open on the hind border. To accommodate this species and certain other Palaearctic forms, Bezzi in 1924

(p. 165, Bull. Soc. Roy. Ent. d'Egypte) erected a new genus *Acanthogeron* with the Palaearctic *senex* Meig. as genotype. Both Séguy (pp. 103-106 Mem. Soc. Sc. Nat. du Maroc., No. xxiv, 1930) and Engel (pp. 271–278, Die Fliegen d. Pal. Reg. Lief., 87 (Bombyliidae), 1935) revised this new genus, to which they allocated the following species: the South African *hirticeps* Bezz., the Palaearctic *syriacus* Vill., *biroi* Beck., *senex* Meig., *separatus* Beck., *perniveus* Bezz., *auripilius* Séguy, *albatus* Séguy, *versicolor* Macq., *dayas* Séguy and *moroccanus* Séguy.

The genus *Acanthogeron*, judging chiefly from its South African representative *hirticeps*, is thus based on species which have a *Bombylius*-type of wing-venation, but which nevertheless differ generically in important characters from *Bombylius*. Not having carefully compared *mystax* Wied., *capito* Lw. and *plumipalpis* Bezz. with *hirticeps*, Bezzi was unaware of the fact that he created a new genus which agreed generically and fundamentally with the *mystax*-group, differing only in having the first posterior cell closed and in specific details. If this one wing-character be taken as of sufficient importance for the erection of a separate and new genus, then this genus *Acanthogeron* is at present represented in Southern Africa by only one species and in the Palaearctic region by ten known species. Not being acquainted with Palaearctic forms, I am not in a position to state whether the ten species enumerated above are strictly and generically identical with *hirticeps*, but there is no doubt that the latter is generically identical with the *mystax*-series even in the characters of the ♂-hypopygium, and in this paper it is referred to *Dischistus*. In view of what has been stated above, *Acanthogeron* can at most be only considered as a subgenus of *Dischistus* s. str.

The other South African species, which up to the present have been referred to *Dischistus* by authors, are generically so different from the *mystax*-series that the erection of at least three new genera (*see Doliogethes*, *Chasmoneura* and *Lepidochlanus* below) is necessary in this paper to contain them and, judging from the descriptions, there is no doubt that the Palaearctic species, at present contained in *Dischistus*, will eventually have to be removed from it. The chief characters of *Dischistus*, as based on the genotype *mystax* and the three other South African species, are as follows:—

Body covered with very dense, fine, shaggy pubescence, giving it a characteristic puff-like appearance, that on ocellar tubercle, frons, antennal joint 1, face and genae markedly long, dense, shaggy or bushy and conspicuous, reminiscent of group 3 of *Bombylius*, that

on thorax, scutellum and abdomen above also very dense, fine and long, the individual hairs on face, genae, head below and even on pleural and coxal parts or even on palps not smooth but serrated or jagged, giving them a beaded appearance, the bristles or bristly elements long and slender, the pubescence on pleurae also long, but with the metapleurae bare and without a distinct metapleural tuft. *Head* with the eyes in ♂♂ very narrowly separated above on vertex or broadly separated by broad ocellar tubercle, the interocular space on vertex in ♀♀ very broad and at least 3 times as broad as broad tubercle; frons more or less convex, sometimes with a very feeble indication of a central, groove-like depression, but without a transverse depression in ♀♀ or a distinct central groove in ♂♂; antennae elongate, with the first joints always separated at their bases, never contiguous or close together, the first joints also elongate, not much shorter than joint 3, always much thickened, incrassate and even barrel-shaped, with very dense, long and conspicuous pubescence, with joint 3 slender, spindle-shaped or subspindle-shaped or at least also narrowed at base, the apical part long and slender, with the terminal elements visible as an elongate basal joint ending in a style; facial region broad, the genae broad, separated from buccal rims by a deep depression, the face itself (in front of antennae) bare, slightly spout-like, the sides of face or upper parts of genae slightly tumid or convex and densely covered with long and shaggy pubescence; proboscis long or short, the labella long, pointed and spinulated and rest of labial part may also be spinulated; palps short or long and conspicuous, the apical joint short, sometimes with dense and longish pubescence. *Wings* not very strongly developed, with the alula very much reduced, vestigial or only feebly developed, with the axillary lobe also not markedly broad and lobe-like, with the base of wings thus narrowish, with the basal comb absent or represented only by a small and insignificant tuft, with only 2 submarginal cells, with 4 posterior cells of which the first is usually open but may be closed and stalked apically (in *Acanthogeron* Bezz.), with the discal cross vein much beyond middle of discoidal cell and the discoidal cell itself narrowed apically. *Abdomen* with the last sternite in ♂♂ elongate, narrowed apically and scoop-like. *Legs* on the whole slender, without any spines on femora below, but only with very slender, long, dense and conspicuous bristly hairs in basal half or to near apex below, denser in ♂♂; tibiae slightly thickened apically, with the spicules long and slender, black and rather conspicuously developed, those on upper surfaces of front ones, however, small and

sometimes wanting, only one row conspicuous; tarsi with the claws well developed, curved down apically and with the pulvilli long and reaching apices of claws (said to be short or reduced in some Palaearctic species of *Acanthogeron* Bezz.). *Hypopygium* of ♂♂ (text-figs. 151–154) with the beaked apical joints usually directed outwards and with a peculiar twisted structure or shape as shown in the figures; aedeagus prominent, stoutish, broad, tubular and spout-like and with or without a ventral aedeagal process below.

From *Bombylius* and *Systoechus* this genus differs in having no spines, but only longish hairs, on femora below, in having practically no basal comb to wings, a very much reduced or vestigial alula, a reduced axillary lobe, in having (in the *mystax*-series) an open first posterior cell, in having a bare face above, bare metapleural part and no metapleural tuft, more broadly rounded facial region, much broader genae, more broadly separated and constantly more incrassate first antennal joints, a somewhat scoop-like and elongated last sternite in ♂♂ and a different type of ♂-hypopygium.

Superficially there is some resemblance to the genus *Gonarthrus* Bezz., but *Dischistus* differs in having incrassate first antennal joints, unspined femora, more S-curved vein between submarginal cells and an entirely different type of hypopygium.

The four known South African species and their varieties may be separated by the characters given in the following key:—

1. (8) First posterior cell opening widely on hind border of wing; entire pubescence on antennae below, on face, genae, head below, pectoral and pleural regions and entire venter below not entirely velvety black; palps much longer and more conspicuous; legs not entirely dark, blackish brown or blackish, the tibiae at least pale yellowish brown to pale brownish, the front and middle tarsi longer, about as long as, or longer than, the tibiae . . . . . 2.
2. (3) Predominantly citron or lemon yellowish-haired species, with the long bristly hairs on face and genae predominantly black and that on head below lemon yellowish; long bristly hairs on coxae and femora below predominantly blackish brown to black, especially in ♂♂; proboscis short, about 3–4 mm. long; palps very slender and without conspicuously long bristly hairs; wings with the extreme base and costal cell slightly paler and more subopaquely yellowish white, with the alula very narrow and poorly developed, the apical part scarcely broadened and not so broad as length of discal cross vein; front tibiae with only the outer row of spicules long and well developed, the rest wanting or minute and inconspicuous; hypopygium of ♂ (text-fig. 151) without any distinct forwardly projecting medial lobe or process at base of aedeagus below ♂ ♀ *mystax* (Wied.) (p. 534).
3. (2) Predominantly dull, pale, soft greyish white, very pale greyish yellow to

pale greyish-haired species, with the long bristly hairs on face and genae paler and predominantly dull whitish or dull reddish white and that on head below white or whitish; long bristly hairs on coxae and femora below either predominantly whitish or with the blackish hairs distinctly less numerous; proboscis very long and slender, longer or much longer than 4 mm. and often reaching 10 mm.; palps distinctly much thicker and more conspicuous, often longer, with dense, long and conspicuous bristly hairs; wings with the extreme base and costal cell apparently darker, more subopaquely pale brownish yellow to brownish, with the alula, though narrow, distinctly more developed and slightly broader, its apical part being distinctly broader and more lobe-like, as broad or much broader than length of discal cross vein; front tibiae either with the spines in all the rows equally developed or with those in the other rows not minute and inconspicuous; hypopygium of ♂♂ (text-figs. 152–154) with a distinct and often long forwardly projecting pointed process or lobe medially at base of aedeagus below . . . . . 4.

4. (7) Palps much shorter, not considerably projecting along base of proboscis, comparatively thicker, with the bristly hairs above predominantly or entirely white and distinctly longer, the darkish ones, if present, insignificant and short or not conspicuous; antennal joint 3 less rapidly broadened towards base, broadest nearer base, less spindle-shaped, with a longer apical part, the terminal joints more gradually tapering to a point; proboscis stouter, either very much shorter or at least shorter relative to body, with the spinules below less developed; interocular space in ♂♂, at narrowest part, much broader, either very broad and as broad as broad tubercle or as broad as front part of tubercle; abdomen in both sexes slightly longer, not markedly cordiform and its apex not conspicuously pointed; halteres with yellowish brown to dark brownish knobs; legs with the femora predominantly or almost entirely black; pubescence above with distinctly more numerous and conspicuous intermixed black bristly hairs on thorax, sides in front of wings and also on mesopleuron, with the black hairs on frons and antennal joints distinctly more numerous and longer, the bristly hairs on antennae below, on face and genae more whitish and not tinted mauvish pink or reddish; hypopygium of ♂♂ (text-fig. 152) with a prominent or long, lobe-like, medial ventral aedeagal process . . . . . 5.

5. (6) Pubescence distinctly more yellowish on body above, that on thorax, pleurae, abdomen above and especially on sides towards base and sides of venter distinctly more yellowish, even in ♂♂, and in ♀♀ often with a deeper yellowish tint, with the black intermixed bristly hairs on body above more conspicuous and more numerous, with the black bristly hairs on frons and antennae distinctly longer and denser, with more numerous and more conspicuous black hairs on sides of face, genae and along hind margins of eyes, with distinctly more numerous black bristly hairs on femora in both sexes and with denser, more numerous and more conspicuous black bristly hairs towards apical half of abdomen above in ♀♀; interocular space in ♂♂ usually very broad, as broad as broad tubercle; proboscis, on the whole, much shorter, usually less than 6 mm.; slightly smaller form, about 8–12½ mm. long

♂ ♀ *capito* Lw. (p. 537).

6. (5) Pubescence, on the whole, paler, appearing greyish from above and more whitish from the side and even in ♀♀ the yellowish tint is less developed, that on body below and on abdomen in both sexes distinctly paler, with distinctly sparser and less conspicuous intermixed black hairs on thorax above, the black hairs on frons, antennae, sides of face, genae and behind eyes shorter, less conspicuous and sparser, that on antennae below being predominantly pale, with less numerous and often almost without any black hairs on femora, these being predominantly whitish or pale and with distinctly less conspicuous black hairs on apical half of abdomen in ♀♀; interocular space in ♂♂ distinctly narrower, only about as broad as narrow front part of tubercle, a little broader than front ocellus; proboscis distinctly much longer, very much longer than 6 mm., often reaching 10 mm.; slightly bulkier and larger form, about 12–13 mm. long . . . . . ♂ ♀ *capito* var. *longirostris* n. (p. 538).

7. (4) Palps distinctly much longer, more elongate, projecting considerably along base of proboscis, more slender, feathered with conspicuous, distinct, dark or black rigid hairs above and longer white ones below; antennal joint 3 more rapidly broadened just before middle, more spindle-shaped, less rod-like, the apical slender part shorter and even more attenuated and with the terminal joints also more rapidly tapering; proboscis more slender and longer relative to body, often reaching 11 mm., with the spinules below distinctly longer and more conspicuous; interocular space in ♂♂, at narrowest part, much narrower, only about as broad as front ocellus; abdomen distinctly shorter, more triangular or cordiform, more rapidly tapering to a point posteriorly; halteres with much paler and often almost whitish knobs; legs with the femora almost entirely yellowish like rest of the legs or only darkened at bases; pubescence above without any or with distinctly fewer and very inconspicuous black intermixed hairs on thorax, none or very few in front of wings and none on mesopleuron, with the black hairs on frons and antennal joints distinctly fewer and shorter, the bristly hairs on antennae below, face and genae usually with a more distinct and often marked purplish pink to reddish tint, especially in ♂♂; hypopygium of ♂ (text-fig. 153) with a very much shorter medial ventral aedeagal process below
♂ ♀ *plumipalpis* Bezz. (p. 539).
(? *heterocerus* Macq.)

8. (1) First posterior cell not opening on hind border of wing but provided with a long stalk, as in *Bombylius*; entire pubescence on antennae below, on face, genae, head below, pectoral and pleural regions and entire venter entirely velvety black; palps short and less conspicuous; legs entirely dark blackish brown to black, even the tibiae being more often dark brownish and only the extreme apices of the femora or the knees being yellowish, the front and middle tarsi shorter, scarcely as long as, or distinctly shorter than, the tibiae . . . . . 9.
(*Acanthogeron* Bezz. series.)

9. (10) Eyes in ♂♂ more broadly separated, as broad as, or even slightly broader than, very broad ocellar tubercle, which is separated from frons by a narrow, deep, transverse fissure; antennal joint 3 broadest nearer base; intermixed bristly hairs on frons and those on antennae below and

laterally in ♀♀ and some on antennae in ♂♂, paler and more yellowish; bristly hairs on occiput, some anteriorly on pronotum whitish like the rest of the hair on thorax above; hair on upper posterior part of mesopleuron composed of dark blackish brown and paler yellowish or yellowish brown hairs intermixed; squamal fringe pale yellowish white; extreme base of wing paler, subopaquely pale yellowish to yellowish white, with the veins yellowish brownish or brown; halteres with pale yellowish or yellowish white knobs; pubescence on abdomen above, from side, more dull whitish or straw-coloured, the black hair at apex less extensive; tibiae slightly paler and the femora dark brownish and less black, even paler and more yellowish in ♀♀; hypopygium of ♂ (text-fig. 154) with the beaked apical joints slightly more elongate, nearly as long as the basal parts, more flattened, with the aedeagus also more strongly developed and longer, projecting considerably beyond apices of basal parts

♂ ♀ *hirticeps* (Bezz.) (p. 541).

10. (9) Eyes in ♂♂ only about half as broadly separated, about as broad as front part of smaller ocellar tubercle, which is not distinctly separated from frons by a deep furrow; antennal joint 3 slightly more slender and only slightly broadened at about middle or just before middle; intermixed bristly hairs on frons in ♀♀ with a distinctly more brownish tint, entirely black in ♂♂; bristly hairs on occiput and front part of thorax above more pale brownish yellow to slightly orange yellow, the rest of hair on mesonotum being more whitish; hair on upper posterior part of mesopleuron entirely velvety black or with at least very dark blackish brown hairs intermixed; squamal fringe dark blackish brown to black; extreme base of wings darker and more dark brownish, with the veins also darker and even blackish brown; halteres with dark or brownish knobs; pubescence on abdomen above, from side, distinctly more yellowish brown, becoming even pale orange brownish apically, the black hair at apex more extensive, denser and more conspicuous; tibiae, like the femora, entirely dark or blackish; hypopygium of ♂ with the beaked apical joints distinctly shorter, much shorter than basal parts, less flattened, with the aedeagus also shorter and less developed

♂ ♀ *hirticeps* var. *karooënsis* n. (p. 544).

D. mystax (Wied.)

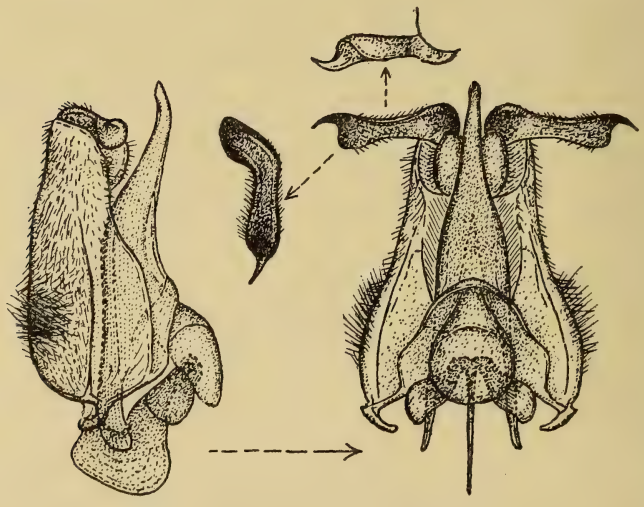
(P. 346, Aussereurop. Zweifl. Ins., i, 1828; Loew, p. 45, Neue Beitr. III, ix, 1855, and p. 192, Dipt. Faun. Südafr., i, 1860.)

This beautiful species is easily recognised by the following characters:—

Body entirely black and even the scutellum entirely black; legs yellowish, the bases of femora in ♀♀ and basal halves of femora in ♂♂ very dark brownish or blackish brown, with the tarsi becoming darker and more blackish apically, the last 2 or 3 joints at least black, with the spicules on tibiae and tarsi and apices of claws black;

pubescence dense, fine, long and puff-like, that on head very dense, long, bushy and conspicuous, long and dense on first antennal joints, face and genae, that on abdomen dense, fine, puff-like or bottle brush-like, the bristly elements on body long, slender and almost hair-like, the pubescence on body predominantly citron or lemon yellowish in both sexes, gleaming sericeous yellowish or satin-like in different lights, that on front part of thorax even gleaming more satin-like in certain lights, that on front part of occiput, on ocellar tubercle, on sides of frons, very densely on antennal joint 1, on sides of face and on genae predominantly black, but with intermixed yellowish hairs, especially on antennal joint 1 above and to a lesser extent on sides of face, that on lower part of genae more purplish black, that on head below pale lemon yellowish and even inclining to whitish in certain lights, with the intermixed longish bristly hairs on sides of thorax in front of wings, in mesopleural tuft, on post-alar calli and to a certain extent sparsely on disc towards base, the intermixed ones on scutellum, the long ones transversely across the hind margins of tergites, more obvious at apex of abdomen and more densely along extreme sides of abdomen ventrally and more sparsely on venter, the dense hairs on coxae and the pubescence and long, slender, bristly hairs on femora below black, but with a few intermixed pale hairs on coxae and femora as well, and with dense pale hair on middle and front femora behind, with the fine hair-like scaling on frons and in a small tuft on each side of face opposite bases of antennae gleaming or glittering golden, with the fine scaling on legs pale yellowish whitish ; wings rather narrowish and not strongly developed, vitreous hyaline, iridescent, with the base, costal cell and basal half of first basal cell subopaquely whitish to pale yellowish whitish, the veins yellowish brownish, with the alula very narrow and the axillary lobe also markedly narrow, with the squamae subopaquely yellowish, narrowly dark-bordered and fringed with yellowish hairs, those nearer base sometimes with intermixed dark ones; halteres yellowish, with very pale knobs which are darkened below. *Head* with the eyes in ♂♂ broadly separated above by the ocellar tubercle, in ♀♀ a little less or scarcely 3 times as broad as tubercle; antennae with joint 1 very incrassate, especially in ♂♂, sausage or spindle-shaped, elongate and usually slightly or even much longer than 3, with 3 slender, much narrower than 1, spindle-shaped, broadest just before middle, the apical slender part long and the basal terminal element bearing the style, long; proboscis about 2½–4 mm. long, not visibly spinulated below, but labella spinulated; palps slender, moderately long, but

not prominently projecting and with long and dense hairs on sides of the longer basal joint. *Legs* rather slender, with a tendency for the front tibiae to have no spicules, or only a few small ones, on upper and inner front surfaces, only a single row of normally developed spicules being present, with all the tibiae tending to be slightly thickened apically; front and middle tarsi subequal or scarcely shorter than the tibiae; claws more rapidly curved nearer apex and the pulvilli long and reaching their bent-down apices. *Hypopygium* of ♂ (text-fig. 151, side and ventral views) with the dorsum and sides of basal parts distinctly rugulose or striate, the lower inner apical margin in neck



TEXT-FIG. 151.—Side and ventral views of hypopygium and apical and dorsal views of the beaked apical joint of ♂ *Dischistus mystax* (Wied.).

region prominent; beaked apical joints (*see* different views) directed outwards ox-horn like, shaped as shown in figures (the top one being a view from the side (dorsally) and the middle one an apical view), slightly hollowed out above; aedeagus projecting slightly beyond apices of basal parts, comparatively large and tubular, its orifice dorsal, without a ventral process below; lateral struts very broad and short and the basal strut incised dorsally.

In the Transvaal and South African Museums.

Length of body: about 7–10 mm.

Length of wing: about $6\frac{1}{2}$–9 mm.

Locality.—South-Western Cape Province.

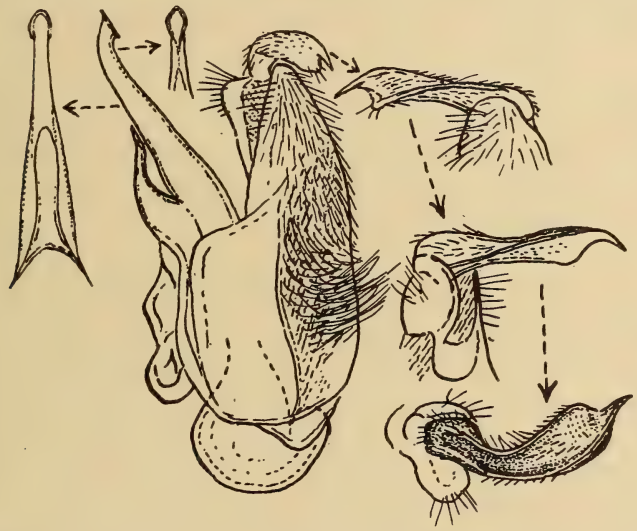
Bezzi (p. 58, Ann. S. Afr. Mus., vol. xviii, 1921) referred *heterocerus*

Macq. (p. 100, Dipt. Exot. ii, 1840) as a synonym of *mystax*. From Macquart's description and figure (Tab. VI, fig. 3, loc. cit.), it is, however, evident that the proboscis is much too long for *mystax*.

D. capito Lw.

(P. 193, Dipt. Faun. Südafr., i, 1860, and Bezzi, p. 58, Ann. S. Afr. Mus., vol. xviii, 1921.)

This is the largest of the South African species of *Dischistus*



Text-fig. 152.—Side view of hypopygium and various views of beaked apical joint and ventral view of aedeagus of ♂ *Dischistus capito* Lw.

(10½–14 mm.), easily recognised by its dull, pale yellowish grey to faintly yellowish pubescence and numerous slender, intermixed, black bristly hairs on thorax and abdomen, the broad head, markedly thickened antennal joint 1, stout proboscis (about 4–6 mm. long), stout palps and more or less stoutish legs. Some ♀♀ show a more yellowish sheen, with the apical part of abdomen darker, due to the dense and long black hairs, the pubescence on mesopleurae and sides of abdomen basally also more straw-coloured yellowish and that on femora with numerous intermixed black hairs. The interocular space in ♂♂ is about as broad as broad tubercle and the third antennal joints are gradually narrowed from the broadest part near base, the terminal joints being elongate and gradually tapering. The front

and middle tarsi are long and longer than the tibiae. *Hypopygium* of ♂ (text-fig. 152) with the dorsum of basal parts only slightly rugulose laterally; beaked apical joints slightly more enlarged apically than in *mystax*, shaped as shown in figures; aedeagus strongly developed, tubular, with the apical opening spout-like and with a distinct and well-developed, lobe-like, ventral, forwardly projecting process near base below.

Locality.—S.E. Karoo, E. Cape Province and Natal. (In the Albany, British, Transvaal and South African Museums.)

One ♂-specimen in the South African Museum was labelled by Bigot as *heterocerus* Macq. and subsequently referred to by Bezzi (p. 58, Ann. S. Afr. Mus., vol. xviii). After commenting on it, Bezzi refers *heterocerus* as a synonym of *mystax* Wied. Though Macquart's description and figure (p. 100, Dipt. Exot. ii, 1840) are of little value for purposes of identification, it is quite evident that *heterocerus* cannot be referred to *mystax* or to *capito*, but may prove to be identical with Bezzi's *plumipalpis* (*see* below).

2 ♂♂ 2 ♀♀ *D. capito* var. *longirostris* n.

These 4 specimens represent a distinct variety of *capito*. From typical ♂♂ and ♀♀ of *capito* they differ in the following points:—

Pubescence, on the whole, paler in both sexes, appearing greyish from above and more whitish or paler from the side, even in ♀♀, the marked yellowish tint of the ♀-*capito* being distinctly less evident, with the hair on pleurae and venter much paler in both sexes and with a less yellowish tint, with much fewer and less conspicuous intermixed black hairs on thorax above and sides in front of wing-bases, with the black hairs on frons, antennae, face, genae and along hind margins of eyes distinctly fewer, less dense and also shorter, those on antennae below being predominantly paler, with much fewer and often without any black hairs on femora in both sexes and with the black hairs in apical half of abdomen in ♀♀ at least fewer and less conspicuous; interocular space in ♂♂, at narrowest part, distinctly narrower and only about as broad as front part of tubercle; proboscis distinctly much longer, ranging from 6–10 mm. *Hypopygium* of ♂ is like that of *capito* s. str., but with the aedeagus slightly stouter and very slightly shorter.

Types in the South African Museum, paratypes in the Albany Museum.

Length of body: about 12–13 mm.

Length of wing: about 11½–13 mm.

Locality.—E. Cape Province: Albany Distr.; Grahamstown, Resolution (Walton, Jan.–Apr. 1928) (Types); Brak Kloof (White, Aug. 1893).

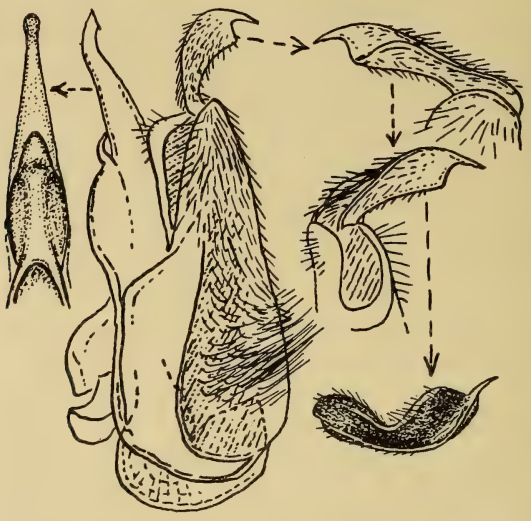
D. plumipalpis Bezz.

(P. 58, Ann. S. Afr. Mus., vol. xviii, Pl. I, fig. 11, 1921.)

Bezzi described the ♂ of this species, but a series of ♂♂ and ♀♀ in the collections necessitates the following supplementary description:—

Body, including scutellum, entirely black, with the abdomen cordiform in shape, tapering apically and broad basally; legs predominantly yellowish, the extreme bases or bases of femora dark brownish or dark blackish brown, the apical halves of tarsi also dark, becoming more black apically, the last 2 or 3 joints black, the spines and spicules on tibiae and tarsi and the apices of the claws black; pubescence long and dense as in the other species, that on body above predominantly pale creamy yellowish to pale yellowish, appearing pelt-like and gleaming greyish sericeous to pale yellowish sericeous, that on thorax in some ♂♂ even gleaming more whitish in certain lights, that on abdomen more straw-coloured yellowish to distinctly yellowish, especially in some ♀♀, the yellowish tint of pubescence on body above in ♀♀ usually deeper and more evident and in some ♂♂ that even on abdomen is more pale creamy to even slightly whitish, the bristly hairs across front part of occiput, those on ocellar tubercle, on sides of frons basally in ♀♀, on sides and apically of antennal joint 1 in both sexes, those along anterior margins of eyes and the shorter, but dense, pubescence on palps above black, that on occiput gleaming more whitish, the rest of pubescence on frons and densely on antennal joint 1 above and below creamy yellowish to pale yellowish or straw-coloured yellowish, with the dense hairs below antennal joint 1 and especially those on sides of face and on genae with a purplish pink or mauvish pink tint, the longish ones on palps below and the dense pubescence on head below more whitish, with the individual hairs on facial region, on palps below, on head below and to a certain extent on anterior coxae and pleural region not smooth, but serrated or jagged, giving these hairs a beaded appearance and more so on those on facial region and on these also more evident and conspicuous than in *capito*, *mystax* and *hirticeps*, with the pubescence on pleurae, pectus, coxae and predominantly on the femora and to a certain extent on sides of venter basally also whitish and more contrasting

in whiteness with the more yellowish tinted pubescence on body above, with a very faint pinkish tint to pubescence on coxae in certain lights, with the sparse intermixed bristly hairs on post-alar calli and transversely across base of thorax, those intermixed on scutellum, the more conspicuous and denser transverse bristles across hind margins of tergites and the intermixed fine bristly hairs on femora among the long whitish ones, but more especially along the upper surfaces and sides of the femora, black ; wings vitreous hyaline,



TEXT-FIG. 153.—Side view of hypopygium and views of aedeagus and beaked apical joint of ♂ *Dischistus plumipalpis* Bezz.

iridescent, with the base and costal cell more subopaquely whitish to yellowish, the veins brownish, becoming paler basally, with the squamae subopaquely yellowish whitish, dark-bordered and fringed with a tuft of creamy to almost white hair; halteres yellowish brownish, with almost white knobs. *Head* with the eyes in ♂♂ separated above by a very narrow space, scarcely as broad as, or even narrower than, front ocellus, the upper facets of eyes thus very coarse, the interocular space on vertex in ♀♀ quite 3 times as broad as ocellar tubercle, or sometimes even slightly broader; antennae with joint 1 very incrassate, especially in ♂♂, sub-barrel shaped and subequal in length to joint 3 (minus terminal joint), with 3 spindle-shaped, broadest just before middle, the apical part more slender, ending in an elongate terminal basal joint bearing a style; face somewhat prominently spout-like; proboscis remarkably long, about 7½–10 mm.,

with sparse but distinct hair-like spinules below on labial part; palps remarkably long, quite 1½ mm. long, the basal joint itself long and slender and even longer than 1 mm., with the pubescence on palps long, dense, and feathery, that above shorter. *Legs* with the spicules in upper inner row on front tibiae small, the inner surface without, or tending to be without, spicules; front and middle tarsi long and longer than the tibiae; claws curved down apically and with the pulvilli reaching their bent-down apices. *Hypopygium* of ♂ (text-fig. 153, side view and views of beaked apical joint and of aedeagus) with the dorsum of basal parts rugulose or striate as in *mystax*; aedeagus with a distinct medial lobe-like ventral process below, much shorter than in *capito*.

Type of Bezzi's ♂ in the South African Museum, other specimens in the Albany, Transvaal, British and South African Museums.

Length of body: about 9–10 mm.

Length of wing: about 8–9 mm.

Locality.—Little Karoo, South-Eastern Karoo and East Cape Province.

There is a strong suspicion that this species may be the same as *heterocerus* Macq. (p. 100, Dipt. Exot. ii, 1840), but Macquart's description and figure are so vague that it is impossible to verify this contention. Characters such as "Front un peu èlargi ♂, à poils noirs et roussâtres" and his "troisième fusiforme" of the third antennal joint as well as the yellowish legs seem to agree well with *plumipalpis*, but his figure of the palps agrees more with that of *capito* Lw.

D. hirticeps (Bezz.).

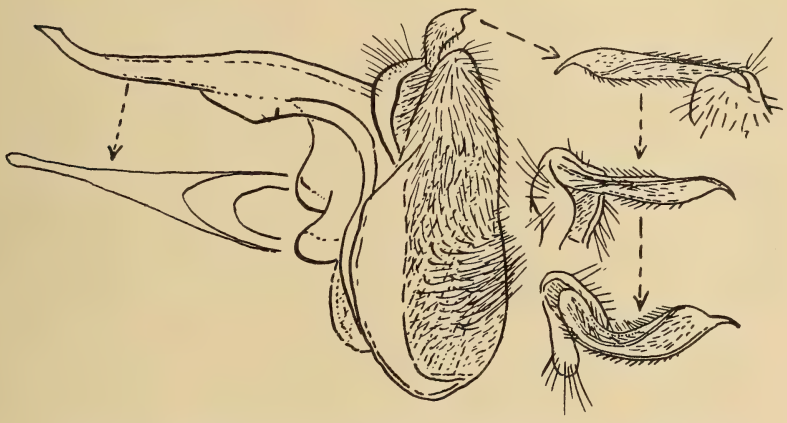
(P. 35, Ann. S. Afr. Mus., vol. xviii, 1921, as *Bombylius*; Bezzi, p. 165, Bull. Soc. Roy. Ent. d'Egypte, 1924, as *Acanthogeron*; Séguy, pp. 103–104, Mem. Soc. Sc. Nat. du Maroc., No. xxiv, 1930, as *Acanthogeron*; Engel, p. 274, Die Fliegen. d. Pal. Reg. Lief., 87 (Bombyliidae), 1935, as *Acanthogeron*.)

This peculiar and interesting species, of which the ♀-type is in the South African Museum, was originally described as a *Bombylius* by Bezzi owing to the closed and stalked first posterior cell. Subsequently it was referred to *Acanthogeron* Bezz. by Bezzi, Séguy and Engel (*see* under genus *Dischistus* in this paper). This species is characterised as follows:—

Body, including scutellum, entirely black, though the sutural parts on pleurae may sometimes be brownish; legs with the femora in both

sexes very dark blackish brown or black to very much beyond middle, only their apices or apical parts being yellowish or yellowish brownish, the femora in some ♀♀, however, with the apical halves tending to be yellowish, the tibiae and greater part of tarsi pale yellowish brownish, the apical parts of the tarsi darker and more brownish or blackish brown, the spicules on tibiae and tarsi black, with the fine scaling on the legs also black and thus enhancing the dark appearance of the legs; pubescence dense, puff-like and shaggy as in the other species, that on head also very dense and bushy, the bristly elements on frons, occiput and on rest of body above in ♀♀ apparently even longer and more conspicuous than in ♂♂, that on facial part and on antennae below in ♂♂ much denser again than in ♀♀, with the bristly hairs and pubescence on femora very dense and conspicuous in ♂♂, slightly less dense in ♀♀, in both sexes more developed than in *mystax* or *plumipalpis* and more like that in *capito*, the pubescence on body above greyish sericeous, sometimes with a faint yellowish sericeous tint to even yellowish tint in some ♀♀, that on thorax in front gleaming more velvety or sericeous whitish in certain lights, that on abdomen with a slightly more straw-coloured tint, especially in ♀♀, where it is sometimes distinctly yellowish tinted, the entire pubescence above, however, when viewed from above, appearing greyish whitish or greyish, the bristly hairs across front part of occiput and the pubescence on head predominantly black in both sexes, but with some intermixed straw-coloured elements, especially on frons, on antennal joint above and laterally and on sides of face in some ♀♀, to a lesser extent in others and absent on face and antennae below in ♂♂ where the black colour is very conspicuous, that towards lower parts of genae with a purplish black or mauvish black tint in ♂♂, that on head below and body below predominantly dull very deep blackish brown to black, showing slight purplish tints in certain lights, the dark pubescence on pleurae extending up to mesopleural tuft and sides of thorax in front of wings, but the mesopleural tuft with some intermixed straw-coloured or slightly yellowish hairs, giving it a paler tint in certain lights, with the long bristly elements and pubescence on femora and coxae also predominantly very deep blackish brown or velvety blackish brown like rest of pubescence below, the pubescence on sides of venter and extreme sides of abdomen above similarly coloured, that towards apex of abdomen below and even above even conspicuously black and tuft-like, with the intermixed bristly elements on sides of thorax above, on post-alar calli, on scutellum and more densely and transversely across hind margins of abdominal tergites

also black and conspicuous, with the fine and shortish pubescence on sides of frons in ♂♂ tinted purplish, the pubescence on palps in both sexes blackish; wings rather narrowish and poorly developed as in the other species, their bases narrowish, vitreous hyaline, iridescent, with the base and costal cell subopaquely yellowish whitish to slightly yellowish, the veins brownish, becoming more yellowish brown to pale yellowish brown basally, the first longitudinal vein being distinctly pale yellowish brown, with the first posterior cell closed and



Text-fig. 154.—Side view of hypopygium, various views of beaked apical joint, and ventral view of aedeagus of ♂ *Dischistus hirticeps* (Bezz.).

acute apically and provided with a stalk as in *Bombylius* and *Systoechus*, but with the vein between first and second posterior cells much more S-curved than in these two genera, with the alula much reduced as in *mystax* and the other species and with the axillary lobe also reduced, with the squamae subopaquely yellowish whitish, narrowly dark-bordered and fringed with a tuft of whitish hairs which is straw-coloured yellowish in certain lights; halteres brownish, with the knobs dirty yellowish to pale yellowish above and darkened below. *Head* with the eyes in ♂♂ broadly separated above by a space a little broader than ocellar tubercle, the eyes in ♂♂ slightly flattened above, with the interocular space in ♀♀ very broad, about 3, or a little more, times as broad as broad tubercle; antennae with joint 1 very incrassate and even slightly more so in ♂♂, subequal in length to joint 3, with 3 very slender, slightly broader nearer base, the broadest part being at about basal third or a little more, slightly more rapidly narrowed apically along lower margin, ending in an elongate basal terminal element passing into a short style; face

much like that of *mystax*, short and much shorter than in *capito* or even *plumipalpis*, its front edge or margin sharp and tending to be curled over, the smooth and shining face thus saddle-like as in *mystax*; proboscis short, about 3 mm. long (not 8 as stated by Bezzi), slightly strigilose in apical half below and with sparse, fine, hair-like spinules below; palps slender, shorter than those of *plumipalpis*. *Legs* with the spicules on inner side and to a certain extent upper inner side on front tibiae wanting; tarsi of front and middle femora tending to be short, shorter than tibiae and much shorter than in the other species; claws shortish, rapidly curved down apically and with the pulvilli well developed and reaching their apices. *Hypopygium* of ♂ (text-fig. 154, showing side view and views of beaked apical joint) with the dorsum of basal parts also striate laterally; beaked apical joints comparatively elongate and flattened, nearly as long as basal parts, shaped as shown in figures; aedeagus (somewhat displaced in the figure) well developed tubular and apparently without a distinct and freely projecting ventral process below; basal strut comparatively small.

Length of body: about 7½–10½ mm.

Length of wing: about 6½–9½ mm.

Locality.—South-Western Cape, Western Cape Province to Namaqualand.

D. hirticeps var. *karooënsis* n.

Engel in 1935 (p. 274, Die Fliegen. d. Pal. Reg. Lief., 87 (Bombyliidae)) described a ♂-specimen which distinctly differed from the typical ♂. A few ♂♂ and ♀♀ from Willowmore in the collections before me without doubt belong to this aberrant form, which I am now referring to a new variety.

These specimens differ from *hirticeps* (Bezz.) in the following characters:—The pubescence, when viewed from above, is much darker, appearing blackish brown or black, with a dark brownish tint; the bristly hairs on frons and sometimes sparsely on antennal joints with a more yellowish brown tint in ♀♀, entirely black in ♂♂, those on occiput and front part of thorax above also more yellowish to orange in some specimens; hair on upper posterior part of mesopleuron entirely blackish in ♂♂ or, when paler hairs are present, these are very dark brownish or brownish; hair on abdomen above, from side, with a distinct brownish tint, even subrufous or pale orange brown towards apex and with the black hair on apical part above

denser, more extensive and more evident. *Wings* with the base darker, not pale yellowish, but more brownish, with the squamal fringe very dark blackish brown to black, with the veins much darker and more blackish brown; halteres with darker or more brownish knobs. *Legs* much darker and with the tibiae also almost black, not pale yellowish brownish and the tarsi also much darker. *Head* with the interocular space in ♂♂ distinctly much narrower, only about half as broad as in *hirticeps* s. str., about as broad as the ocellar tubercle or front part of tubercle, with the third antennal joints apparently more slender. *Hypopygium* of ♂ like that of *hirticeps* (cf. text-fig. 154) but with the beaked apical joints apparently shorter in relation to basal parts, comparatively less flattened; aedeagus less strongly developed and also shorter.

In the Transvaal Museum and also in the South African Museum.

Length of body: about 9½–10½ mm.

Length of wing: about 7–8½ mm.

Locality.—S.E. Karoo: Willowmore (Brauns, Nov. 1920, Aug. 1923). Nieuwveld Karoo: Fraserburg (Alston, 6/1885) (labelled as *hirticeps* by Bezzi).

Doliogethes n. gen.

(Syn. = *Dischistus* in part.)

In this new genus are included some of the species referred to *Dischistus*. The chief characters of this genus, as compared with those of *Dischistus*, are:—

Body with the pubescence not puff-like, not markedly long, fine or shaggy, that on head distinctly much shorter, less dense and shaggy, that on thorax above also shorter and sometimes with a slightly cropped-off appearance, the metapleurae not entirely bare, always with some hairs, even if only along sutures and a metapleural tuft of hairs always present; body, especially below and on face, usually with extensive red. *Head* with the eyes in ♂♂ above either very narrowly separated, or broadly separated by the ocellar tubercle, sometimes almost touching in front of tubercle and sometimes even broader than tubercle, with the interocular space in ♀♀ broad, about 3–5 times as broad as tubercle; frons less convex, distinctly transversely depressed in ♀♀ and in ♂♂ also slightly or distinctly depressed medially; antennae much shorter than in *Dischistus*, with the first joints close together, much shorter and very much shorter than 3, not thickened, incrassate or barrel-shaped and without very long pubescence, with joint 3 much stouter, never spindle-shaped, usually

gradually narrowed from base to apex, sometimes subrod-like or slightly curved, with the first terminal element much smaller and shorter, not conspicuous and sometimes scarcely separately visible; face rounded in front and not entirely bare above; genae narrower and less evident and the upper parts of genae or sides of face not tumidly prominent; proboscis longish or short; palps always short and hidden in basal cavity at base of proboscis, also 2-jointed, the apical joint being shorter than basal one. *Wings* as in *Dischistus*, but with the first posterior cell, however, always open, with a distinct and often well-developed basal comb present, with the alula strongly or normally developed and lobe-like and the axillary lobe also more strongly lobe-like and broader than in *Dischistus*, with the discoidal cell distinctly more truncate and broader apically, with the wings sometimes infuscated basally, especially in ♂♂, sometimes also with spot-like infuscations on apical cross veins of basal cells and with the discal cross vein much before middle and not much beyond middle of discoidal cell. *Abdomen* with the last sternite in ♂♂ not elongate or narrowed and scoop-like, either truncate or slightly emarginate apically and the posterior lateral angles rounded. *Legs* always with some spines on middle and hind femora below and even sometimes on front ones, the femora with only normal or shortish hairs below, never with long, dense and conspicuous bristly hairs as in *Dischistus*; tibiae usually with the spicules pallid and comparatively shorter; tarsi with the claws well developed, either rapidly curved downwards apically and with long pulvilli or less rapidly curved down and with short pulvilli which do not reach the middle of claws. *Hypopygium* of ♂♂ (text-figs. 155–165) with the beaked apical joints not very elongate or twisted; aedeagus either with a vertical membrane-like process below or with a ventral aedeagal process below on each side in form of an apically directed process or even with a complex single process, the aedeagus itself not very stout and tubular.

The genotype of this genus is *seriatus* (Wied.) as defined in this paper. Very close to *seriatus* is *tripunctatus* (Macq.) and *ovatus* (Bezz.). The other species to be included in this genus are *pallidulus* n. sp., *imbutatus* n. sp., *consobrinus* n. sp., *melanops* n. sp., *trivergatus* n. sp., *rubicundus* (Bezz.), *luridus* n. sp., *vittipes* (Bezz.), *aridicolus* n. sp., *meridionalis* n. sp., *chionoleucus* n. sp., *psammocharus* n. sp., and *rufirostris* (Bezz.). Of the described, but to me unknown, species, such as *Dischistus variegatus* Macq. (p. 102, Dipt. Exot. ii, 1840) and possibly *Bombylius pusio* Wied. (p. 349, Aussereurop. Zweifl. Ins., i,

1828) probably also belong to this genus. The species are by no means uniform and the *seriatus*-series constitute a well-defined group by themselves, distinctly differing from the *pallidulus-meridionalis*-series. An anomalous series, to a certain extent constituting a bridging group between this genus and the next one, are the species *trivergatus*, *rubicundus* and *luridus*. The unique ♀-*chionoleucus* n. sp., and ♀-*psammocharus* n. sp. are in many respects not genotypical.

Key to the known South African species seen by me.

1. (34) Wings with the first and second basal cells not distinctly equal in length, the first one always, even if only very slightly, longer than the second, with the basal and costal parts either distinctly more yellowish or yellowish brown, the veins usually darker and not pallid or pale yellowish; pubescence not entirely and uniformly dull frosty white above and below and all the bristly hairs and bristles on head and body not entirely white, with distinctly less dense scale-like depressed pubescence on head, behind eyes, on pleurae and on abdomen, with the pubescence on pleurae in form of erect hairs and the mesopleural and metapleural tufts well developed; head with the transverse depression on frons in ♀♀ always well developed, distinct and often conspicuous, with antennal joint 3 only very gradually thickened basally or subrod-like and even slightly curved; legs with the spines and spicules yellowish or at least not whitish . . . . . 2.
2. (13) Body more or less ovate or elongato-ovate; scutellum entirely or very extensively dark or black like rest of body above; pubescence on body below and on pleurae uniformly ochreous yellowish, fulvous, purplish red, mauvish red, mauvish to dark purplish brown or even purplish black, that on abdomen above in both sexes always with much dark hair in addition to black transverse bristly hairs or bristles; antennae with joint 3 shortish, distinctly more thickened at base and then gradually narrowed to apex; middle femora without any distinct spines in front below; hypopygium of ♂♂ (text-figs. 155–158) with the beaked apical joints more elongated, without any ventral aedeagal process or an apically directed process on each side, usually only with a vertical membrane-like structure below . . . . . 3.
3. (4) Pulvilli long, extending to beyond middle of claws; antennae, face, greater part of proboscis, pleurae, venter and legs ferruginous red or reddish; wings with the base, costal cell, basal part of first basal cell reddish brown, with a distinct blackish brown spot-like infuscation on apical cross veins of basal cells and at junction of second and third longitudinal veins; pubescence on head and body predominantly fulvous, orange brown to rufous or reddish mauve, without any distinct intermixed blackish or very dark hairs on occiput, thorax above and on venter; antennae with joint 3 distinctly shorter, subequal to joints 1 and 2 combined and with joint 1 also slightly longer, at least 4, or even a little more, times as long as 2 . . ♂ ♀ *tripunctatus* (Macq.) (p. 561).

4. (3) Pulvilli short, confined to base and not reaching middle of claws; all these sites not reddish, antennal joint 3 and proboscis black and joints 1 and 2 usually with much black, face sometimes black, pleurae much darker or even black and, if reddened, then only along sutures and the legs rarely entirely yellowish, with at least femora darkened or black, even if only at bases, sometimes entirely black and even tibiae blackened in some forms; wings with the base and costal part subopaquely yellowish brown, not so extensive and conspicuous and without any distinct spots on cross veins; pubescence on thorax more ochreous, ochreous brown, mauvish white to dull whitish, that on head and occiput usually darker and blackish or blackish brown, always with intermixed blackish hairs on upper part of occiput, on thorax and those on disc of abdomen above predominantly black; antennae with joint 3 distinctly longer and longer than, even $1\frac{1}{2}$ times as long as, 1 and 2 combined and with joint 1 slightly shorter, about 3–4 times, not longer than 4 times, as long as 2 . . . . . 5.
5. (12) Legs with the femora always blackened in basal halves or even entirely black; scutellum entirely black; antennae with joint 1 slightly shorter, only about 3–$3\frac{1}{2}$ times as long as 2, with 3 distinctly much longer than 1 and 2 combined; pubescence ochreous brownish, purplish reddish to dull whitish on thorax above; smaller forms usually less than 11 mm. long and with a wing-length of less than $9\frac{1}{2}$ mm. . . . . 6.
6. (11) Face and to a certain extent the sutural parts of pleurae, upper part of mesopleuron and in ♂♂ sometimes the sides of abdomen reddish yellow, reddish brown to brownish; legs with the femora blackened to a variable extent, the tibiae and basal parts of tarsi yellowish or brownish to dark brownish; pubescence above yellowish, ochreous brownish to purplish reddish, that on mesopleurae and body below opalescent fox red, fulvous brownish to mauvish red; wings with the basal and costal parts more yellowish or yellowish brown, the veins yellowish brown and the knobs of halteres on the whole paler, more yellowish to yellowish brown . . . . . 7.
7. (10) Legs on the whole paler, the femora not so extensively blackened, the tibiae much paler and more yellowish; pleurae with more yellowish red or reddish brown; pubescence on the whole paler, more ochreous or fox reddish, that on abdomen above with more ochreous brownish or fox reddish hair on sides, that on body below more ochreous to fox reddish, the bristles or bristly hairs on body more fox red, reddish or opalescent purplish red . . . . . 8.
8. (9) Pubescence on the whole more ochreous yellowish, that on body below also more ochreous reddish or yellowish, that on abdomen above with more rusty or fox reddish hairs on sides and even discally in certain lights, with the bristles on head, on sides of thorax and on scutellum paler and more fox reddish to reddish brown; legs with the femora slightly more extensively darkened, the tibiae more yellowish; sides of abdomen more obscurely or scarcely reddened
   ♂ ♀ *seriatus* (Wied.) (p. 556).
9. (8) Pubescence on the whole more purplish red, that on body below more opalescent purplish red or reddish, that on abdomen above almost entirely

very dark purplish brown, the black transverse bristles more conspicuous, with the bristles on head, on sides of thorax and on scutellum more conspicuously reddish to purplish red; legs almost entirely reddish brown, only the bases of front femora and under surfaces basally of the others darkened; sides of abdomen brownish red

♂ ♀ *seriatus* var. *puniceus* n. (p. 558).

10. (7) Legs much darker, the femora entirely black and the tibiae also scarcely paler; pleurae on the whole much darker, only the sutural parts brownish; pubescence on the whole more ochreous brownish, with more purplish brownish intermixed hairs above, that on abdomen above predominantly black in both sexes, that below darker and more purplish brownish or very dark fox reddish, with the bristles and bristly hairs on head and body darker, more blackish brown, mauvish brown to black . . . . . ♂ ♀ *seriatus* var. *vagens* n. (p. 557).

11. (6) Face, entire antennae, pleurae and entire abdomen much darker, usually almost entirely black; legs almost entirely black and even tibiae and tarsi very dark or even blackish; pubescence on thorax above dull whitish, straw-coloured whitish or greyish white, that on scutellum, pleurae, pectus and abdomen above predominantly very dark velvety brown, with coffee brownish gleams; wings with the basal and costal parts slightly darker, the veins very dark, the squamae more brownish and knobs of halteres usually darker and more velvety brownish in ♂♂ at least . . . . . ♂ ♀ *seriatus* var. *pullatus* n. (p. 559).

12. (5) Legs predominantly yellowish, the femora not darkened; scutellum with an obscure ferruginous tint discally towards hind margin; antennae with joint 1 paler yellowish red, slightly longer and at least 4 times as long as 2, with 3 thus slightly shorter and only a little longer than 1 and 2 combined; pubescence more mauvish white on thorax, pleurae and sides of abdomen, intermixed with purplish to purplish brown bristly hairs and bristles, those towards apex of venter more purplish; slightly larger species, about 11 mm. long and with a wing-length of about 9½ mm. . . . . ♂ *ovatus* (Bezz.) (p. 560).

13. (2) Body not markedly elongato-ovate; scutellum almost entirely yellowish or reddish and under parts of body or abdomen above usually also with much reddish; pubescence on face, head below, pleurae and venter predominantly, or very extensively, gleaming, sericeous whitish or silvery whitish or pale yellowish, that on abdomen above in both sexes predominantly gleaming sericeous or silvery whitish to yellowish or at least very pale and, if dark hairs are present, they are in form of transverse bristles, that on thorax above sometimes with a tendency to show transverse bands of gleaming golden brownish hairs; antennae with joint 3 more rod-like or subrod-like, usually slightly curved and thus humped in appearance, usually longer and scarcely or less thickened at base; middle femora usually with some distinct and often conspicuous spines below; hypopygium of ♂♂ (text-figs. 159–165) with the beaked apical joints shorter, more broadened in basal half or basal part, with a distinct ventral aedeagal process or with a distinct apically projecting process on each side below aedeagus . . . . . **14.**

14. (27) Claws distinctly more rapidly curved down apically and the pulvilli

long, reaching or extending to beyond middle of claws or even to apex; eyes in ♂♂ more narrowly separated, the space not broader than ocellar tubercle, sometimes very narrow and almost touching, the interocular space in ♀♀ also narrower and only about 3–3½ times as broad as tubercle; abdomen with the hind margins, or some of them towards apex, usually broadly or narrowly reddish; pubescence with the bristles on head, sides of thorax, posterior calli, scutellum and on pleurae entirely sericeous whitish, sericeous yellowish or gleaming golden, not darkened at their bases or in basal halves and the rest of pubescence above not with a tendency for individual hairs to be darkened basally; wings tinged yellowish in ♂♂ to a variable extent, much less so in ♀♀ and with spot-like infuscations on apical cross veins of basal cells not present in all forms . . . . . 15.

15. (24) Claws distinctly more rapidly curved down apically and the pulvilli distinctly extending much beyond middle of claws and even reaching apices of claws; abdomen with the red hind margins of tergites broader or at least more extensively developed; wings with the first basal cell very much longer than second basal cell, the discal cross vein thus nearer, at or even beyond middle of discoidal cell . . . . 16.

16. (19) Eyes in known ♂♂ very narrowly separated, touching or almost touching in front of ocellar tubercle or at least not separated by ocellar tubercle or front part of tubercle; face longer and broader, the antennae inserted nearer middle of distance between tubercle and front edge of face; antennal joint 1 distinctly longer, quite 4 times as long as 2; wings with the discal cross vein very much before middle, at or near basal third, of discoidal cell, more distinctly tinged deeper yellowish in basal half or three-quarters in ♂♂ and also more distinctly yellowish at base and costal part in ♀♀ and with distinct dark spot-like infuscations on apical cross veins of first and second basal cells and at base of second and third longitudinal veins and even an indication of another at base of vein between discoidal and third posterior cells; abdomen with the red hind margins narrower in both sexes and pleurae more extensively yellowish or reddish; pubescence on face, head below, pleurae and venter much paler and more gleaming sericeous whitish or silvery, that on thorax above with a tendency to be deeper yellowish or golden yellowish across pronotal part, transversely on each side above wings on disc and also on scutellum . . . . . 17.

17. (18) Pubescence on thorax comparatively shorter and in ♂♂ with a slightly more cropped-off appearance, predominantly more yellowish on occiput, more broadly yellowish across front part of thorax, across thorax opposite wings, across base and on scutellum, with the metapleural tuft more yellowish; basal comb of wings distinctly more yellowish; scutellum more extensively pale yellowish red or reddish and abdomen usually more reddish apically; antennae with joint 1 slightly shorter and slightly more thickened, with 3 subequal to or only a little longer than 1 and 2 combined; interocular space in ♀♀ apparently broader, 3½ to nearly 4 times as broad as tubercle; hypopygium of ♂ (text-fig. 159) with comparatively dense and conspicuous pubescence above on basal parts, long in neck region below, with the beaked apical joints compara-

tively small and much compressed laterally towards apex, the beak being much curved outwards, with the process on each side of aedeagus below strongly developed, broad and with very broad flattened apical parts; slightly larger form, about 6–9 mm. long, with a wing-length of about 6½–9 mm. . . . . ♂ ♀ *pallidulus* n. sp. (p. 564).
(Syn.=*variegatus* Bezz. nec Macq.)

18. (17) Pubescence on thorax and on body above slightly longer and more shaggy, less cropped off in ♂, predominantly paler and more whitish, that on occiput and thorax also less yellowish, only with a yellowish patch on each side of pronotal part, with the metapleural tuft whitish; basal comb whitish; scutellum with a broader black base and apical part of abdomen less extensively reddish; antennae with joint 1 slightly longer and more slender, with 3 apparently also slightly shorter; interocular space in ♀♀ comparatively narrower, not quite 3½ times as broad as tubercle; hypopygium of ♂ (text-fig. 160) with much shorter and less conspicuous pubescence on basal parts, the beaked apical joints differently shaped and with longer and more slender apical parts, the ventral aedeagal process on each side narrow and strap-like and without a medial process; slightly smaller species, about 5–7 mm. long and with a wing-length of about 6–7 mm. . . . ♂ ♀ *imbutatus* n. sp. (p. 567).

19. (16) Eyes in ♂♂ more broadly separated, as broad as front part of tubercle or as broad as tubercle; face very much shorter, the antennae inserted much nearer front edge of face; antennal joint 1 distinctly shorter, less than 4 times as long as 2; wings with the discal cross vein much nearer middle, at middle or even slightly beyond middle of discoidal cell, less deeply tinged or scarcely tinged yellowish in ♂♂ and base and costal parts in ♀♀ less conspicuously yellowish, without any distinct spots on cross veins; abdomen with much broader red hind margins or with extensive red above or even entire apical part may be extensively reddish and the pleurae with much less red or even entirely black; pubescence on face, head below and pleurae less sericeous whitish and more yellowish or sericeous yellowish, that on thorax above either deeper and more uniformly yellowish or with longitudinal, not transverse, stripes of brownish golden pubescence . . . . . 20.

20. (21) Interocular space in ♂♂ narrower, narrower than ocellar tubercle, only about as broad as narrow front part of tubercle or front ocellus, quite 3½ times as broad as tubercle in ♀♀; antennae with joint 1 darkened or black above, with 2 entirely black, with 3 distinctly longer, more than 1½ times as long as 1 and 2 combined, more rod-like; pubescence on thorax above distinctly longer and more shaggy, with 3 distinct longitudinal stripes or bands of rufous brown or gleaming golden brownish hair and also with the similar hairs at base of thorax, with that on pleurae paler and more whitish and that on abdomen above in both sexes predominantly sericeous white and distinctly longer and more shaggy; wings with the discal cross vein usually distinctly beyond middle of discoidal cell; hypopygium of ♂ (text-fig. 161) with a complex ventral aedeagal process . . . . ♂ ♀ *trivergatus* n. sp. (p. 568).

21. (20) Interocular space in ♂♂ much broader, at least as broad as tubercle, only about 3, or only a little more, times as broad as tubercle in ♀♀;

antennae with joints 1 and 2 yellowish, with 3 distinctly shorter and stouter, only about 1½, or even a little less, times as long as 1 and 2 combined; pubescence denser, shorter and on thorax with a more cropped-off appearance, especially in ♂♂, more uniformly yellowish or sericeous yellowish above, without any darker bands or with short band on each side, with that on face, head below and pleurae less whitish and more yellowish and that on abdomen above in both sexes shorter, denser and yellowish; wings with the discal cross vein usually at about, or just before, or even slightly beyond, middle of discoidal cell; hypopygium of ♂♂ (text-fig. 162) with the ventral aedeagal process in form of 2 apically projecting processes . . . . . 22.

22. (23) Antennal joint 3 more elongate, quite 1½ times as long as 1 and 2 combined; wings in ♂♂ very feebly and faintly tinged yellowish up to end of costal cell and across middle of discoidal cell to apex of anal cell, the yellow more evident towards base and in costal cell, with the apical part of wings entirely hyaline; pubescence on thorax scarcely with a band of darker hairs on each side; abdomen in ♀♀ with only narrow reddish hind margins on tergites 4–6 and tergite 7 blackish above and with only narrowish indistinct, or without any, red discally on tergites 2 and 3; hypopygium of ♂ (text-fig. 162) with the beaked apical joints comparatively broader, with a shorter and broader apical half, distinctly depressed above, with the ventral process on each side below aedeagus directed obliquely outwards, broad, hollowed below and with the recurved apical parts more or less armed with minute dentate processes along the recurved margin . . . . ♂ ♀ *rubicundus* (Bezz.) (p. 570).

23. (22) Antennal joint 3 comparatively shorter, stouter, less than 1½ times as long as 1 and 2 combined; wings in ♂♂ more distinctly and more darkly tinged yellowish or pale yellowish, the yellow also more extensive, leaving only extreme apex hyaline; pubescence on thorax with a more distinct reddish brown band on each side in basal half above wings; abdomen in ♀♀, as in ♂♂, with tergites 4–7 very broadly red across hind margins or even entirely reddish, with the red on sides also more extensive and with the hind margins of 2 and 3 also broadly red discally; hypopygium of ♂ with the beaked apical joints distinctly narrower, more attenuated apically, with a longer apical beak, scarcely depressed above, with the lateral aedeagal process on each side not directed outwards, contiguous and parallel, much compressed in apical halves, the recurved apical margin also much compressed but not armed with distinct minute teeth . . . . ♂ ♀ *luridus* n. sp. (p. 572).

24. (15) Claws distinctly less rapidly curved down apically and the pulvilli just about reaching or falling short of middle of claws, not extending beyond middle; abdomen in ♀♀ at least with only the hind margins of tergites towards apex narrowly reddish or even entirely black on greater part of disc; wings with the first basal cell not very much longer than the second basal cell and discal cross vein thus much nearer base of discoidal cell 25.

25. (26) Entire occiput, basal part of frons, medial part of face, greater part of head below, mesopleuron, front part of pteropleuron and practically entire abdomen above discally black; wings with the base, costal cell, basal half of first basal cell subopaquely pale yellowish in ♀, without

any distinct and conspicuous spot-like infuscations on apical cross veins of basal cells and with the basal comb yellowish; pubescence slightly longer and more shaggy on thorax at least, predominantly sericeous or silvery whitish, only that across pronotal part with a fulvous sheen, with the bristles and pubescence on abdomen entirely silvery or sericeous whitish, that on pleurae also mainly sericeous whitish; claws apparently slightly more curved and pulvilli quite reaching, or tending to extend a little beyond, middle of claws . . . ♀ *melanops* n. sp. (p. 580).

26. (25) Entire head above, upper middle part of occiput, entire face and head below, the sides of thorax above, entire pleurae and even narrow hind margins of tergites 3–7 discally reddish or red; wings with the base, costal cell, basal half of marginal cell and greater part of first and second basal cells more conspicuously and opaquely pale yellowish brown in ♀, with distinct, conspicuous and very dark spot-like infuscations on apical cross veins of basal cells and with the basal comb blackish; pubescence distinctly shorter, sericeous whitish above, but with the bristles on occiput, ocellar tubercle, frons, antennae and upper part of face and those on sides of thorax more reddish or reddish brown, those transversely on abdomen above very dark blackish brown or black, with the pubescence on pleurae and body below more yellowish, fulvous or pale brownish golden; claws distinctly less curved down apically and the pulvilli falling short of middle of claws

♀ *consobrinus* n. sp. (p. 582).

27. (14) Claws distinctly more gradually curved down apically and the pulvilli short, confined to base or just falling short of middle of claws but not extending beyond middle; eyes in known ♂♂ distinctly more broadly separated above, slightly broader than ocellar tubercle or even much broader than tubercle, the interocular space in known ♀♀ usually broader, about 3½–5 times as broad as tubercle; abdomen rarely with even narrow red hind margins, usually entirely black above in both sexes and only reddened on sides in some ♂♂; pubescence with the bristles on head, sides of thorax, posterior calli, on scutellum and on pleurae, especially in ♀♀, darkened at bases or in basal halves, their apical parts gleaming sericeous whitish or the bristles are at least tipped sericeous whitish, with the rest of pubescence above, especially on disc of thorax above and scutellum, tending to be more golden brownish or yellowish at their bases; wings with the basal and costal parts yellowish to yellowish brown, more extensive in ♂♂ and always with spot-like infuscations on apical cross veins of basal cells . . . . . 28.

28. (33) Pubescence with the bristles on head, occiput, front and sides of thorax, on posterior calli, on scutellum, mesopleuron and in metapleural tuft, especially in ♀♀, distinctly darker, more yellowish brown, brownish or black at their bases or in basal halves, their apical parts gleaming sericeous whitish; interocular space in ♀♀ broader, about 4–5 times as broad as tubercle; antennal joint 3 much longer, at least 1½ times as long as 1 and 2 combined; proboscis usually longer and more than 2–3 mm. long; abdomen in ♂♂ sometimes more reddened on sides or on extreme sides and entirely black above in ♀♀; wings with the spot-like infuscations on apical cross veins of basal cells smaller and more linear, less

conspicuous; legs with the femora usually darkened or blackened below, with the pulvilli confined to base and not reaching middle of claws 29.

29. (30) Pubescence on abdomen in both sexes with distinct black transverse bristles, only the extreme apices of which are pallid or whitish and with the rest of the bristles on head, occiput, thorax in front and on sides more extensively blackish brown or black, practically only their apices gleaming whitish, with the pubescence on thorax above, especially in ♂♂, with more distinct, darker and more brownish golden hair in transverse bands, the hair on sides of hind margin of tergite 2 conspicuously dark fulvous brown or brownish golden in both sexes and with black intermixed bristly hairs on all the coxae; hypopygium of ♂ (text-fig. 164) ♂ ♀ *meridionalis* n. sp. (p. 575).

30. (29) Pubescence on abdomen in both sexes without any black transverse bristles, entirely sericeous whitish and if darkened then only at extreme bases of bristles, with the bristles on head, occiput, thorax and scutellum only darker yellowish brown or blackish at their extreme bases or in basal halves, the greater part or apical half being gleaming sericeous whitish, the pubescence on thorax above more whitish or with paler and more yellowish transverse bands of hair or with only the bases of such hairs brownish golden, the hair on sides of hind margin of tergite 2 entirely whitish like rest of pubescence on abdomen, not dark, or scarcely fulvous only at the bases of these hairs and with black intermixed bristly hairs practically only on hind coxae . . . . . 31.

31. (32) Wings in ♂ very extensively tinged yellowish brown up to end of costal cell and across to basal half of second posterior cell, the yellow being more distinct along veins in this part, the base, costal cell and basal half of first basal cell more opaquely yellowish whitish, with the basal comb larger and pale, with the squamae large and well developed; interocular space in ♂ very broad, quite 2 times as broad as ocellar tubercle; antennae with joint 1 longer, more than 4, at least 5, times as long as 2, with 3 tending to be reddish; proboscis longer, about 7 mm. long; legs with the femora more extensively and more distinctly blackened below; pleurae less extensively reddish; pubescence more straw-coloured above, more yellowish across pronotal part, with the bristles on occiput, thorax in front, sides of thorax, on posterior calli and scutellum reddish or reddish brown at their bases; larger species, about 10½ mm. long, with a wing-length of about 11½ mm.; hypopygium (text-fig. 163) ♂ *vittipes* (Bezz.) (p. 573).

32. (31) Wings in ♂♂ only tinged subopaquely yellowish brown at base, in costal cell, to end of first basal cell and across to end of anal cell, the rest hyaline, with only the base, costal cell, basal two-thirds of first basal cell and to a certain extent even basal two-thirds of second basal cell in ♀♀ yellowish or yellowish brown, with the squamae smaller; interocular space in ♂♂ narrower and only a little broader than, not more than 1½ times as broad as, ocellar tubercle, about 4–5 times as broad as tubercle in ♀♀; antennae with joint 1 slightly shorter, only about 4 times as long as 2, with 3 black; proboscis shorter, only about 2–3 mm. long; legs with the femora less distinctly darkened below; pleurae extensively or entirely reddish; pubescence gleaming sericeous whitish or silvery

whitish, more so in ♂♂, that on disc of thorax in ♀♀ and across pronotal part and across sides of thorax just above wings and on scutellum fulvous golden, with the bristles on occiput, frons, tubercle and face in ♀♀, on face in ♂♂ and on thorax in both sexes black or blackish brown at their bases or in basal halves; smaller species, 5–8 mm. long, with a wing-length of about 6–8 mm.; hypopygium of ♂ (text-fig. 165) ♂ ♀ *aridicolus* n. sp. (p. 577).

33. (28) Pubescence with the bristles on head, occiput, front part and sides of thorax and on posterior calli gleaming reddish brown or brownish golden and not darkened at their bases; interocular space in ♀ narrower, only about 3 times as broad as tubercle; antennal joint 3 shorter, scarcely or only a little longer than joints 1 and 2 combined; proboscis short, only about 2 mm. long; abdomen in ♀ with the hind margins of tergites 3–7 narrowly reddish; wings with the base, costal cell, basal half of marginal cell and first and second basal cells opaquely pale yellowish brown and with the dark spots on apical cross veins of basal cells larger and more conspicuous; legs with the femora entirely yellowish like tibiae and tarsi, with the pulvilli slightly longer and just reaching middle of claws . . . . . ♀ *consobrinus* n. sp. (p. 582).

34. (1) Wings with the first and second basal cells equal in length (*Systoechus*-like), the wings entirely hyaline or greyish hyaline and the basal and costal part subopaquely whitish, the veins pallid or pale yellowish or dark brownish; pubescence on entire body above and below dull frosty or chalky white and all the bristles on body either entirely white or only their extreme bases may be golden, with very dense, hair-like scaling on head, pleurae and abdomen, the pubescence on pleurae more in form of hair-like scaling and woolly in appearance, the metapleural tuft poorly developed and also in form of hair-like scaling; head with the transverse depression on frons in ♀♀ more feebly developed or at least not very deep, with antennal joint 3 distinctly more thickened or broadened basally; legs with the spines and spicules whitish. (Entire body, including scutellum, black) . . . . . 35.

35. (36) Frons slightly narrower on vertex, only a little more than 3 times as broad as ocellar tubercle, with the anterior depression less distinct; face slightly shorter, narrower and less conspicuous; tibiae predominantly dark; front tarsi more slender and longer than front tibiae and all claws distinctly more rapidly bent downwards apically; pubescence entirely frosty white; wings with the veins paler and more yellowish throughout; body narrower and less bulky . . ♀ *chionoleucus* n. sp. (p. 583).

36. (35) Frons relatively broader on vertex, quite 4 times as broad as tubercle, with the anterior depression more distinct; face slightly broader, longer and more conspicuous; tibiae distinctly much paler and predominantly yellow, their apical parts yellowish brown; front tarsi thicker and shorter, shorter than front tibiae and all the claws distinctly less rapidly curved down apically; pubescence with the extreme bases of whitish bristles on occiput, thorax in front of wings, on scutellum and transversely across hind margins gleaming golden; wings with the veins on the whole darker, becoming even blackish towards apical parts of wings; body broader and plumper . . . . ♀ *psammocharus* n. sp. (p. 584).

D. seriatus (Wied.)

(P. 348, Aussereurop. Zweifl. Ins., i, 1828; Bezzi, p. 63, Ann. S. Afr. Mus., vol. xviii, 1921.)

Wiedemann's description of a single ♀-specimen of this species is so unsatisfactory that it is almost impossible to identify this species correctly without examining the type. Bezzi referred a ♂, in the South African Museum, to this species and provisionally I am referring some specimens to this species and am also describing at least three distinct new varieties. The chief characteristics of the numerous specimens and varieties referred to this species are:—

Body, including the proboscis and scutellum, black; frons and face pale yellowish brown, reddish brown to black; antennae also entirely black or also with joints 1 and 2 brownish or even yellowish; sides of abdomen obscurely reddish or brownish on sides to entirely black in ♂♂; pleurae with the sutural parts, upper part of mesopleuron and hind margins of venter sometimes yellowish brown, brownish or even entirely dark or black; legs with the coxae and femora usually very dark, blackish brown to black, the tibiae and apices of femora more brownish, sometimes also very dark and even blackish like femora, the tarsi ranging from yellowish brown to almost blackish; pubescence with fox reddish, ochreous, fulvous to purplish reddish hairs above on occiput, thorax, scutellum, sides of tergite 1, even on abdomen above discally, usually with intermixed darker brownish, reddish brown or even blackish ones on these sites, with the bristles on ocellar tubercle, frons, antennal joint 1 and face yellowish brown, dark reddish brown to dark purplish brown, with the pubescence on body below ochreous or brownish yellow to reddish or purplish red or even almost black, that on abdomen above ochreous to black, always with the transverse bristles black in both sexes, with the bristly hairs on coxae ochreous yellowish, fulvous, brownish to purplish and those on venter with dense ochreous brownish to purplish or mauvish and even deep mauvish brown ones on sides; wings hyaline, but with the base, costal cell, to a certain extent first basal cell and alula subopaquely yellowish white to yellowish, with the basal comb small, dark brownish to blackish, with the veins reddish brown, brownish to very dark blackish brown, becoming slightly paler basally, with the squamae opaquely pale yellowish brown to dark brownish, with ochreous yellowish to brownish fringes; halteres yellowish, brownish to dark brown and with pale yellowish to dark brownish knobs. *Head* with the interocular space in ♂♂ at

narrowest part about as broad as front part of ocellar tubercle, in ♀♀ about 3, or a little more, times as broad as ocellar tubercle; antennae with joint 1 about 3–4 times as long as 2, with joint 3 nearly or about 1½ times as long as 1 and 2 combined, gradually narrowed to apex or even subrod-like, ending in a small, insignificant, conical first terminal element which again ends in a short style; proboscis about 1½–3 mm. *Legs* with slender, sparse bristle-like hairs on femora towards base; middle femora without any distinct spines below or with 1 or 2 spines below and some bristle-like hairs; hind femora with about 4–6 spines in apical half below, continued basally as a row of bristle-like hairs; claws gradually curved downwards apically, with the pulvilli very short and confined to base in both sexes. *Hypopygium* of ♂ (text-figs. 155, 156) similar for all the varieties and fig. 155 of *seriatus* v. *vagens* n. more or less showing the common structure of *seriatus*.

Length of body: about 4–7½ mm.

Length of wing: about 4–7½ mm.

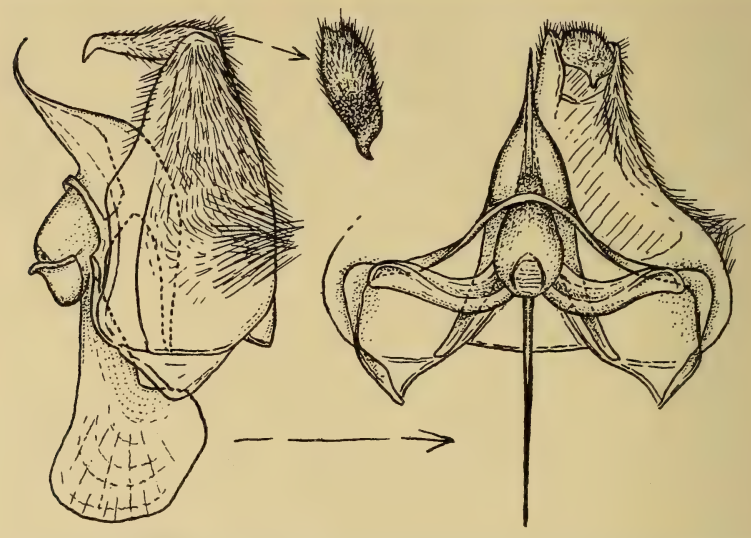
Locality.—Karoo, Nieuwveld Karoo and N.W. Karoo.

According to the description of Wiedemann the typical form has predominantly fox reddish hair above and on face, that on abdomen above also more ochreous yellowish, that on tergite 1 on side fox reddish. Specimens which I am referring to the typical form also have slightly paler legs, the tibiae and tarsi more yellowish and even the pleurae are more yellowish brown; wings with paler veins and with paler yellowish basal part and squamae.

38 ♂♂ 71 ♀♀ *D. seriatus* var. *vagens* n.

This variety differs from the description of *seriatus* and from what I take to be the typical form in having the face and antennal joints 1 and 2 more reddish brown, the pleural parts also are much darker, dark brownish; legs with the femora more extensively darkened, even black, only the apices more yellowish, even the tibiae much darker, very dark brownish; pubescence ochreous brownish or ochreous yellowish on thorax above, slightly paler on occiput and pronotum in ♂♂, with the bristly hairs on upper part of occiput behind eyes also fox reddish, but the bristles and bristly hairs on head above and face darker reddish brown to blackish brown in ♀♀ and even blackish in ♂♂, with deeper reddish brown to purplish red intermixed bristles and hairs on thorax and on scutellum, with the dense pubescence on abdomen above in ♂♂ predominantly black, appearing velvety black, sparser but also black in ♀♀, only those on

tergite 1 on sides ochreous brownish, with the pubescence on body below also darker, more purplish brownish or fox reddish, the intermixed bristles on mesopleuron and bristles in metapleural tuft even more reddish to purplish red, the pubescence on sides of venter, especially



TEXT-FIG. 155.—Side view and greater part of ventral view of hypopygium, and dorsal view of beaked apical joint of ♂ *Doliogethes seriatus* var. *vagens* n.

in ♂♂, slightly deeper and more fulvous or ochreous brownish; wings with darker or very dark blackish brown veins, the squamae darker brownish and with more brownish fringes, the halteres with more brownish knobs. *Hypopygium* (text-fig. 155).

Types in the South African Museum.

Locality.—Nieuwveld Karoo: Victoria West Distr. (Mus. Staff, Oct. 1935).

1 ♂ 1 ♀ *D. seriatus* var. *puniceus* n.

These specimens appear to represent a distinct variety, differing from the typical *seriatus* and from the variety *vagens* in having the hair, in the ♂ especially, on occiput, thorax above and on body below more or less uniformly and strikingly deep purplish red or purplish brown when viewed from in front, that on pleurae even distinctly more reddish and also with a distinct and beautiful opalescence in certain lights, with the intermixed bristly hairs on mesopleuron and sides in front of wings darker purplish red, that on abdomen above

also dark above as in *vagens* but more purplish brown when viewed obliquely, the bristles on scutellum also deeper purplish red, the bristly hairs on head above and face also very dark and more blackish brown; sides of abdomen, especially towards apex, fairly broadly and distinctly reddish brown like the pleurae and venter; legs almost entirely reddish brown, only the front femora and undersurfaces of the others at base dark or blackish.

Types in the British Museum.

Locality.—S. Karoo: Worcester (Turner, Sept. 1923).

3 ♂♂ 7 ♀♀ *D. seriatus* var. *pullatus* n.

These specimens form a separate and distinct variety, differing from the typical form and the other varieties in having an entirely or almost entirely black body, there being no distinct red on sides of abdomen in ♂♂ and the antennae are also entirely black; face entirely very dark or even black and pleurae are black or only with the sutural parts very dark blackish brown in some specimens; legs almost entirely black, the femora entirely black and with even very dark spines on hind ones below, the tibiae only slightly less dark, the tarsi very dark brownish, becoming darker apically; pubescence with the bristly hairs on ocellar tubercle, frons, antennae and face black or at least very dark blackish brown, that on occiput composed of whitish hairs intermixed with very dark reddish brown to blackish brown ones, that on thorax and scutellum dull whitish or greyish white, the bases of individual hairs being tinted slightly brownish or yellowish, and intermixed with these are dark hairs, with the bristles and hairs on sides of thorax in front of wings, on head below, pleurae, pectus, on scutellum behind and on abdomen predominantly very dark velvety blackish brown, having a deep coffee brownish gleam, usually darker in ♂♂, with some pubescence on sides of venter and sides of abdomen above becoming paler and more whitish or greyish towards apex in some specimens, that on sides of tergite 1



Text-fig. 156.—Side view of hypopygium and dorsal view of beaked apical joint of ♂ *Doliogethes seriatus* var. *pullatus* n.

also pale and more whitish, that on abdomen above almost entirely black in both sexes; wings with the veins also very dark as in var. *vagens*, the squamae also very dark brownish and fringed with brownish hairs in ♂♂ or even with paler ones in ♀♀, with the knobs of halteres usually darker and more brownish than in the typical form. *Hypopygium* of ♂ (text-fig. 156) like that of *seriatus* but apparently more punctured and rugulose on basal parts, in which respect it is nearer to that of *ovatus* (Bezz).

Types in the South African Museum.

Locality.—Nieuwveld Karoo: Victoria West Distr. (Mus. Staff, Oct. 1935) (Types). S. Karoo: Matjiesfontein (Turner, 1–6/10/1928) (in the British Museum).

D. ovatus (Bezz.).

(P. 62, Ann. S. Afr. Mus., vol. xviii, 1921.)

This unique ♂-type, in the South African Museum, is so near to *seriatus*, as defined in this paper, that it may even be considered as still another variety of *seriatus*. It is, however, slightly larger, and is easily recognised by the dull purplish or mauvish brown to mauvish white pubescence, with the bristles on occiput and head, those densely intermixed on sides of thorax in front of wings, the bristles on posterior calli, on scutellum and transversely across abdomen, some in metapleural tuft and on coxae dark purplish brown, the pubescence on body below, sides of abdomen and on venter mauvish white; antennal joints 1 and 2, face, sutural parts of pleurae, sides of abdomen and venter yellowish red; legs slender, entirely yellowish, with the pulvilli short, not reaching middle of claws; wings hyaline, the base, costal cell and first basal cell subopaquely yellowish, the veins reddish brown, becoming paler basally. *Head* with the interocular space at narrowest part as broad as tubercle, thus comparatively broader than in *seriatus*; antennae with joint 1 distinctly longer than in



TEXT-FIG. 157.—Side view of hypopygium of ♂ *Doliogethes ovatus* (Bezz.).

seriatus, at least 4½ times as long as 2, with 3 relatively shorter in relation to 1 and 2 combined and only a little longer. *Hypopygium* (text-fig. 157) with distinct setiferous punctures on basal parts and very much like that of *seriatus* var. *pullatus*.

Locality.—No locality label.

D. tripunctatus (Macq.).

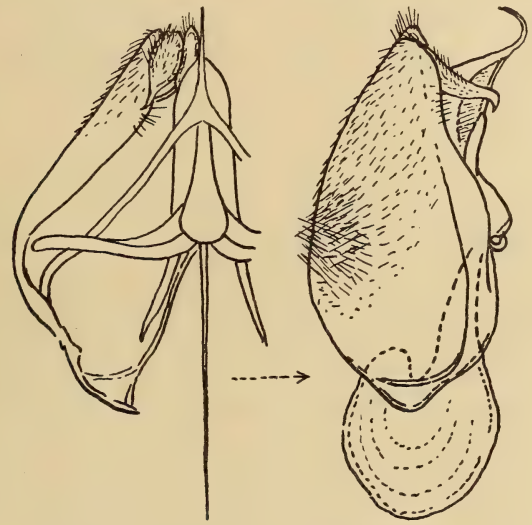
(P. 101, Dipt. Exot. ii, 1840; Bezzi, p. 65, Ann. S. Afr. Mus., vol. xviii, 1921.)

A ♂-specimen of this species was referred to *tripunctatus* by Bezzi. Provisionally I am referring a long series of both sexes to this species, but apart from the reference to three spot-like infuscations on the wings and the yellowish pubescence on body, Macquart's description is as good as useless and it is exceedingly doubtful whether these specimens belong to the same species as seen by Macquart. Moreover, the specimen of Macquart had no locality label. A full description of the species is appended below so that it can be easily identified:—

Body above black, the integument, when denuded, with a deep bluish black, submetallic sheen; antennae, frons, face, greater part of proboscis above, greater part of pleural regions, sides of abdomen broadly in ♂♂ and less extensively in ♀♀ and the venter, pale reddish, reddish brown to ferruginous brown, with the third antennal joints often much darker and very dark reddish brown, with the reddish brown infusion on pleurae variable, being often very pale and extensive and sometimes infused with patches of dark brownish to black, with the face often more pale reddish yellow to almost ochreous yellow in some specimens, with the venter more often paler in ♂♂ and the red on sides of abdomen in ♂♂ more extensive and the entire genital segment in ♂♂ also red; legs, including coxae, also pale yellowish red to pale reddish brown, with the tibiae slightly more distinctly yellowish, with the last 2 or 3 tarsal joints darker and more blackish brown like the apices of the claws, with the spines and spicules pallid to pale yellowish or reddish brown and the scaling pale yellowish white to yellowish; pubescence fulvous, pale yellowish brown, fox brown, pale velvety brown to fox reddish or purplish red in effects, appearing darker brown when viewed from above, the bristly hairs on ocellar tubercle, frons, antennae and face pale fulvous, pale reddish brown, fox red to dark purplish, those on occiput and front part of thorax above slightly paler and more yellowish in certain lights in some specimens, that in front of wings

and on each side just above wings and on upper part of mesopleuron usually darker fulvous red, reddish brown or purplish red, the pubescence on abdomen above in ♂♂ discally very dark reddish or purplish brown, with an obscure purplish tint and these dark hairs more or less arranged transversely across apical parts of segments, with the bristly hairs and hairs above in ♀♀ more extensive and darker blackish brown to black, the transverse bristles towards apex being longer, stouter and entirely black, with those broadly on sides of abdomen in ♂♂ and also apically paler yellowish fulvous to fox brown, darker reddish brown in ♀♀ and intermixed with dark blackish or purplish brown bristly hairs, the pubescence on pleurae not paler than above, also fulvous, reddish brown, fox red to opalescent purplish red, being paler on front coxae and base of venter, especially in ♂♂, with the metapleural tuft also fox red, reddish brown or opalescent purplish red, the bristles on thorax, scutellum and upper parts of mesopleuron reddish brown to deep reddish, the transverse slender bristles on abdomen in ♂♂ fulvous or reddish, darker and more purplish brown to blackish in ♀♀, with the intermixed bristles on coxae dark brownish to reddish brown, the hairs on head below much paler and whitish and those towards apex of venter in ♀♀ dark blackish or purplish brown and much darker than in ♂♂; wings vitreous hyaline, with the base, costal cell, basal half of first basal cell, basal three-quarters of second basal cell, alula and to a certain extent the extreme bases of anal and axillary cells yellowish brown to brownish, with the greater part of second basal cell, however, paler, with a distinct blackish brown infuscation on discal cross vein, basal cross vein of fourth posterior cell and also transversely across fork of second and third longitudinal veins at about middle of first basal cell and also transversely across base of first basal cell and extending into costal cell and, in some specimens, also with a faint infuscation at base of vein separating first and second submarginal cells, with the basal comb dark sienna brown or reddish brown, with the veins dark brownish, the first and third longitudinal veins and basal parts of some of the others yellowish, with the discal cross vein before middle of discoidal cell, with the squamae opaquely brownish and fringed pale yellowish brown to fox red; halteres pale reddish brown, with pale yellowish or yellowish white knobs. *Head* with the interocular space in ♂♂, at narrowest part, about as broad as anterior part of ocellar tubercle, about 3, or even a little more, times as broad as tubercle in ♀♀; antennae with joint 1 subequal to or more often slightly longer than 3, with 3 only very gradually tapering apically, the apical part not being very slender

and the terminal style very slender, almost bristle-like; proboscis about 2–4 mm. long. *Legs* with the slender hairs below on front and middle femora in ♂♂ slightly more dense; front femora unarmed below; middle ones with about 1 or 2 spines apically below but often without any spines; hind ones with about 5–9 spines below and often with a long slender bristle at base; pulvilli not reaching apices of claws. *Hypopygium* of ♂ (text-fig. 158) much resembling that of some species of *Bombylius*, with the aedeagus curved upwards apically



Text-fig. 158.—Half of ventral view and side view of hypopygium of ♂ *Doliogethes tripunctatus* (Macq.).

and without any ventral aedeagal process, only with a thin vertically stretched membrane below; beaked apical joints with the apices rather rapidly curved downwards.

Length of body: about 4–8 mm.

Length of wing: about 4½–8 mm.

Locality.—Namaqualand: Garies Distr.; Klip Vlei (Mus. Exp., Nov. 1931); Bowesdorp (Mus. Exp., Nov. 1931); Kamieskroon (Mus. Exp., Sept. 1930); Springbok (Lightfoot, Oct. 1890) (labelled as *tripunctatus* Macq.); Klaver (Roberts, 19/9/17). W. Cape Province: Olifant's River Valley between Clanwilliam and Citrusdal (Mus. Exp., Oct.–Nov. 1931); Van Rhyn's Pass (Cockerell, 11–21/10/31) (Imperial Institute). Karoo: Graaff-Reinet. S. Karoo: Matjiesfontein (Turner, 22–30/10/28) (British Museum).

Two ♀-specimens in the British Museum from Matjiesfontein probably represent a slight variety, differing from the Namaqualand ♀♀ in having the bristly hair and bristles on the head darker and more purplish brown, the pubescence on occiput and thorax above slightly darker and deeper rufous brown to dark purplish red, the depressed pubescence on frons and shorter pubescence on thorax distinctly and more beautifully opalescent purplish red or pink, that on pleurae on the whole also more opalescent dark purplish red or pink, giving the entire lower parts of body a striking, deep purplish red, opalescent hue, with the first antennal joint apparently shorter, less than 4 times as long as joint 2, and the dark infuscations on discal cross vein and apical cross vein of second basal cell distinctly less diffuse and conspicuous.

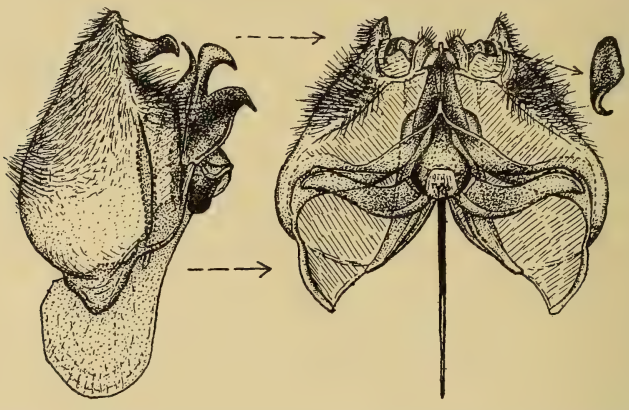
17 ♂♂ 7 ♀♀ *D. pallidulus* n. sp.

(Syn. = *variegatus* Bezz. nec Macq. on p. 64, Ann. S. Afr. Mus., vol. xviii, 1921.)

Body above more or less black; rims of buccal cavity very pale yellowish white; vertex and frons in ♀♀, frons in ♂♂, antennal joints 1 and 2, face, genae and head below, proboscis (excepting black apex), scutellum, greater part of pleurae, apical margins laterally of abdominal segments 1–2 and hind margins of 3–7 (more broadly laterally and with segments 4–7 above in ♂♂ almost entirely) and hind margins of venter broadly (more so in ♂♂) and genital segment very pale yellowish red to pale reddish or reddish brown, with the frons and face often more pallid and the sides of abdomen in ♂♂ more salmon pinkish in some specimens; antennal joint 3 dark or blackish, but with the basal three-quarters often more dark reddish brown to brownish and in some even yellowish, only the apices being darkened; legs, including coxae, pale ochreous yellow to pale yellowish brown, with the lower surfaces of the femora usually slightly more brownish, with the last 2 or 3 tarsal joints darker and more brownish, with the scaling on legs pale yellowish white to whitish and the spines pallid or yellowish, with the apices of claws blackish; pubescence, viewed from above, very pale yellowish and almost white or whitish on abdomen, pale below, the bristly hairs on ocellar tubercle, frons and antennal joints yellowish to yellow, that on face and genae white or whitish, the pubescence on occiput pale yellowish to yellow, but with a distinct whitish sheen in certain lights, that on thorax above with a broadish transverse band across its front part, a broad transverse discal

and basal band opposite wings and also transversely across scutellum of pale golden yellow or sericeous yellow hair, slightly paler in ♂♂, separated by almost entirely white or whitish bands or transverse patches, with the macrochaetae and bristles pale yellowish or pallid. their apices still paler and whitish, that on abdomen above in ♂♂ with very pale yellowish hair on segment 2 and with white recumbent ones on 3 to apex, with the transverse rows of bristly hairs very slender and indistinguishable from the rest of the pubescence, in ♀♀ with yellowish hair on segment 2 and also yellowish hairs, arranged transversely across apical margins of the other segments, the bases of which, however, have whitish hair, with the transverse rows of bristly hairs stouter, less recumbent and longer than the hair, very pale yellowish white and with almost silvery white apices, with the hair on head below, on prosternal region, mesopleurae, sides of abdomen and greater part of venter apically white or whitish, that on upper part of mesopleuron in metapleural tuft, hind coxae and often base of venter very pale yellowish to yellowish white; wings with more or less the basal half or basal three-quarters in ♂♂ tinged pale yellowish brown to very pale yellowish, which infuscation in ♂♂ is often very distinct and conspicuous in some specimens, extending even beyond end of costal cell, leaving only the apical part, from base of second marginal cell, hyaline and becoming imperceptibly darker towards base, with the infuscation in ♀♀ only visible in costal cell, basal part of marginal cell, first and second basal cells and extreme bases of anal and axillary cells and the rest of wing hyaline or greyish hyaline, with a distinct and darker infuscation on discal cross vein and basal cross vein of fourth posterior cell and also more diffusely at fork of second and third longitudinal veins in both sexes, slightly more distinct in ♂♂ and often also with a very faint one at base of vein separating discoidal and third posterior cells, with the basal comb pale yellowish, with the veins brownish to dark brownish in ♂♂ (with darker infuscation) and more pale brownish in ♀♀, with the discal cross vein before middle of discoidal cell, with the extreme base of wings usually more distinctly subopaquely yellowish, with the squamae opaquely pale yellowish white to yellowish and its basal half darker and fringed whitish; halteres yellowish, with whitish or pale yellowish white knobs. *Head* with the interocular space in ♂♂, at narrowest part, almost touching, the inner margins of eyes touching and narrower than front ocellus, then gradually diverging anteriorly, the frons being small, nearly 4, or a little more than 3, times as broad as tubercle in ♀♀ at narrowest part; antennae with joint 1 usually shorter than 3,

with 3 only gradually tapering, often subrod-like, the apical part not being markedly slender, with the terminal style short, bristle-like and the first terminal joint often distinct, small and conical; proboscis about 2½–4 mm. long. *Legs* with about 4–6 longish spines on middle femora below; hind ones with about 6–8 spines below. *Hypopygium* of ♂ (text-fig. 159, showing lateral and ventral views) with the basal parts comparatively broad and short, densely pubescent above and laterally in neck region, with the outer apical angles of neck region prominent and projecting; beaked apical joints relatively small and shaped as shown in figures, the beak directed outwards;



TEXT-FIG. 159.—Side and ventral views of hypopygium and apical view of beaked apical joint of ♂ *Doliogethes pallidulus* n. sp.

aedeagus curved upwards and with a ventral process in form of a medial projecting process (*see* figures) and connected with it on each side a clavate process, broadened and flattened apically.

Types in the South African Museum.

Length of body: about 6–9 mm.

Length of wing: about 6½–9 mm.

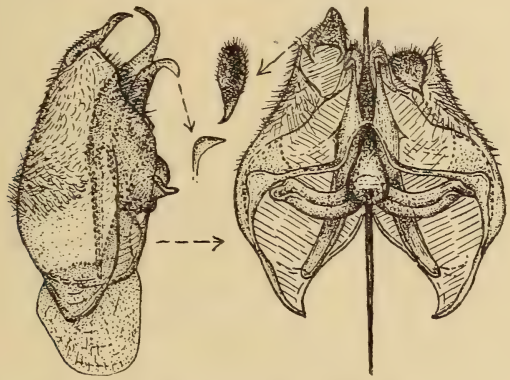
Locality.—Namaqualand: Garies Distr.; Klip Vlei (Mus. Exp., Nov. 1931) (Holotype); Springbok (Lightfoot, Oct. 1890) (Allotype labelled as *variegatus*); Bowesdorp (Mus. Exp., Nov. 1931); Nieuwoudtville (Ogilvie, 18–22/11/31) (Imperial Institute). West Cape Province; Olifant's River Valley between Clanwilliam and Citrusdal (Mus. Exp., Oct.–Nov. 1931).

Some ♂-paratypes, especially those from the Olifant's River Valley, show a tendency for the wings to be slightly more extensively tinged yellowish brown, a character which appears, however, to be variable.

Bezzi (p. 64, loc. cit.) referred a ♀ of this species, together with another ♀ of another species, to *variegatus* Macq. (p. 102, Dipt. Exot. ii, 1840). Macquart's statements that the pubescence is "*albo fuscanoque,*" that it is "*long* 4 *l.,*" that the wings "*à base jaunâtre non ciliées*" (which I take to refer to the absence of a basal comb) and to a long proboscis seem to me to refer to some larger species than this.

5 ♂♂ 4 ♀♀ *D. imbutatus* n. sp.

This species resembles small specimens of *pallidulus* very closely, but may at once be distinguished by the distinctly longer hairs on



Text-fig. 160.—Side and ventral views of hypopygium of ♂ *Doliogethes imbutatus* n. sp.

body above, especially in ♂♂ on thorax above, where the pubescence has no apparent "shorn-off" appearance; pubescence is also paler and more whitish, the hair on occiput being distinctly whiter and that on front part of thorax above also whiter and with only a patch of yellowish hair on each side, that in metapleural tuft whitish; wings in ♂♂, at least, with the yellowish brown infuscation often slightly, but distinctly, more extensive, leaving less of the apex hyaline, with the basal comb whitish; scutellum with a broader black base and often less extensively and more obscurely reddened. *Head* with the interocular space in ♂♂ as in *pallidulus*, but in ♀♀ comparatively narrower, not much more than 3 times as broad as tubercle; antennae with joint 1 distinctly longer and more than 4 times as long as 2, more slender and not thickened, with joint 3 shorter than 1 and 2 combined; proboscis about 2–2½ mm. long and also red with a black tip. *Abdomen* with a tendency to be less exten-

sively red on sides apically and also on venter. *Legs* with about 3 or 4 slender spines below on middle femora; hind ones with about 5–7 spines below. *Hypopygium* of ♂ (text-fig. 160, lateral and ventral views and dorsal view of beaked apical joint) with distinctly less and less dense pubescence above on basal parts, the neck region below being much smoother and without very long hairs; beaked apical joints not laterally compressed towards apex, differently shaped and with a slender and pointed apex; aedeagus with the lateral process on each side below slender and narrow, the apical parts scarcely dilated and directed downwards and outwards and without a medial projecting prominent process.

Types in the South African Museum.

Length of body: about 5–7 mm.

Length of wing: about 6–7 mm.

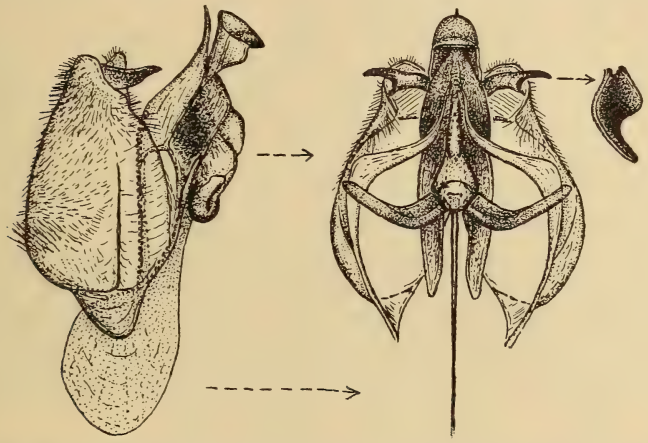
Locality.—Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931) (Types). W. Cape Province: Olifant's River Valley between Clanwilliam and Citrusdal (Mus. Exp., Oct.–Nov. 1931). S. Karoo: Matjiesfontein (Turner, Oct. 1928) (British Museum).

The specimens from the Olifant's River Valley probably represent a slight variety. They are slightly smaller than 7 mm., with more obscurely reddened scutellum and often with the first antennal joints less conspicuously elongate, but nevertheless slender and the process, on each side of aedeagus, slightly shorter.

3 ♂♂ 5 ♀♀ *D. trivergatus* n. sp.

Body black; antennal joint 1 pale reddish yellow to yellowish, but darkened along upper surface or often with a dark infusion at about middle above or towards base or near apex; proboscis and second and third antennal joints black; face, posterior calli, scutellum, sides of first abdominal segment, broad hind margins of segments 2–7 in ♂♂ (very much broadened laterally, occupying the entire sides and also almost the entire upper segments 3–7), 2–6 in ♀♀ (slightly narrower but also much broadened laterally), almost the entire venter in ♂♂ and narrow hind margins of ventral segments in ♀♀, pale yellowish red, red to reddish; pleurae almost entirely dark, only with an obscure reddish infusion in some specimens; legs pale ochreous yellow to pale brownish yellow, with the coxae dark, the extreme bases of front and middle femora often darkened too and with the last 2 or 3 tarsal joints also darkened and more blackish brown, with pale yellowish white scaling on legs and pallid or yellowish spines

and spicules; pubescence, viewed from above, appearing dark brownish on thorax and white on abdomen, when viewed from the side, that on occiput is straw-coloured yellowish to yellowish and often with an almost pale orange yellowish sheen in some ♂♂, that on thorax above straw-coloured whitish or yellowish and with 3 broad longitudinal bands of reddish or velvety brown to orange brown hair, appearing almost dark brown from above and coalescing towards the base, where it occupies almost the entire base, these



TEXT-FIG. 161.—Side and ventral views of hypopygium and apical view of beaked apical joint of ♂ *Doliogethes trivergatus* n. sp.

bands being separated discally by 2 central narrow bands of more whitish or straw-coloured whitish hair, the pubescence on posterior calli and scutellum with pale or straw-coloured whitish hairs, that on abdomen with the hair transversely across basal half of segment 2 also dark reddish brown or velvety brown and the rest of the fine and slender longish hairs and bristles on abdomen in ♂♂ white, but with the depressed ones in ♀♀ more yellowish and the erect ones slightly more straw-coloured whitish or yellowish, with the bristly hairs on ocellar tubercle and frons in ♀♀ straw-coloured whitish, often more distinctly yellowish in some ♂♂, that on antennae and face in both sexes whitish or straw-coloured, the hair on pleurae, in metapleural tuft and venter whitish to pale straw-coloured whitish, that on venter in ♂♂ slightly more conspicuously white, with the macrochaetae and bristles on posterior calli straw-coloured whitish, but with those on scutellum often slightly paler yellowish brown; wings distinctly, though faintly, tinged pale

yellowish in ♂♂, the infusion extending imperceptibly to about end of costal cell and across wing to basal half of second posterior cell, becoming distinctly more evident towards base, only greyish hyaline in ♀♀ but with the faint yellowish tinge present only in costal cell, first basal cell and base, with the basal comb straw-coloured, with the veins mostly pale yellowish, becoming more brownish or dark towards apex, the discal cross vein just beyond middle of discoidal cell, with the squamae opaquely yellowish and with a whitish fringe; halteres pale yellowish, with whitish knobs. *Head* with the interocular space in ♂♂, at narrowest part, about as broad as front part of tubercle, the inner margins of eyes being subparallel for a distance not quite as long as tubercle before diverging apically, a little more than 3 times as broad as tubercle in ♀♀; antennae with joint 1 comparatively short, only about or scarcely 3 times as long as 2 and with 1 and 2 combined very much shorter than 3, with 3 almost rod-like, slightly more thickened towards base in ♀♀; proboscis about 2–2½ mm. long. *Legs* with 1 or 2 longish spines on apical aspect below on middle femora and 5–6 spines on hind ones below. *Hypopygium* of ♂ (text-fig. 161, lateral and ventral views and the beaked apical joint from above) with the beaked apical joints compressed in apical half and directed outwards, with the dorsum foveately depressed; aedeagus with a complex ventral aedeagal process.

Types in the South African Museum.

Length of body: about 5–6 mm.

Length of wing: about 5–6 mm.

Locality.—Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931) (Holotype); Garies Distr.; Klip Vlei (Mus. Exp., Nov. 1931) (Allotype).

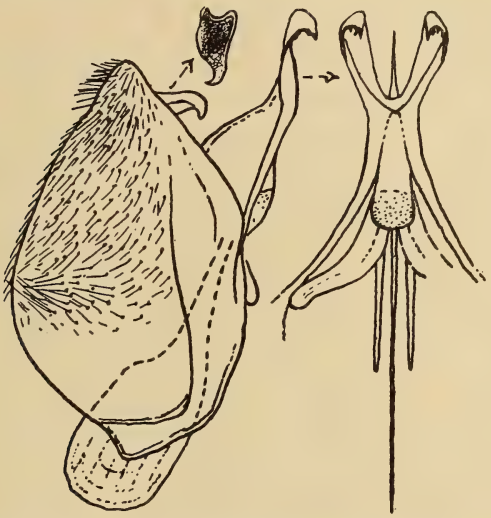
This small species can be separated from all others in this series by the presence of three longitudinal bands of dark reddish brown hair on the thorax, the white hair on the abdomen and extensively reddened abdomen, especially in ♂♂.

D. rubicundus (Bezz.).

(Pp. 60 and 61, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species, as stated by Bezzi, has a marked superficial resemblance to *Bombylius mundus* Lw. The chief distinguishing characters of this species are the yellowish red first and second antennal joints, the yellowish red face, the yellowish red propleural part, a yellowish red longitudinal band across pleurae, the predominantly

yellowish red scutellum, very broad reddish yellow sides of abdomen in ♂♂, broad yellowish red hind margins of tergites in ♂♂, narrower reddish hind margins in ♀♀, the broad reddish hind margins of sternites in ♂♂ and the entirely yellowish legs in both sexes; pubescence rather shortish, dense and compact in ♂♂ at least, that on thorax in ♂♂ at least with a cropped appearance, that on abdomen also shorter than in other species in this category, pale sericeous yellowish above, that on antennae below and face more golden yellowish, that on



Text-fig. 162.—Side view of hypopygium, ventral view of aedeagal complex, and dorsal view of beaked joint of ♂ *Doliogethes rubicundus* (Bezz.).

thorax in basal half arranged in more or less 3 discal bands, of which the one on side above wings is more developed and slightly deeper yellowish, the pubescence on body below slightly paler and duller yellowish than above; wings with a very faint, but distinct, yellowish tinge towards base in ♂♂, the base, costal cell and basal half of first basal cell more distinctly subopaquely yellowish, the wings hyaline in ♀♀, with the small basal comb yellowish, the veins pale yellowish brown, more yellowish basally, with the discal cross vein in the neighbourhood of the middle of discoidal cell, with the squamae subopaquely yellowish white, with a very pale yellowish white or creamy fringe; halteres with almost white knobs. *Head* with the eyes above in ♂♂ separated by width of ocellar tubercle, in ♀♀ by a space about 3, or a little more, times as broad as tubercle; face shorter than in the *pallidulus*-series, the antennae inserted much

nearer the front edge of face than in *pallidulus*, *aridicolus*, etc.; antennae with joint 1 short, only about 2, or a little more, times as long as 2, with 3 only about 1½ times as long as 1 and 2 combined, stoutish, with a slight tendency to be broadest just before middle, the terminal elements in form of a slight boss bearing a fine style; proboscis rather stoutish, slightly reddened below, about 2–3 mm. long. *Legs* with 2 or 3 distinct spines on middle femora in front and about 5–6 spines on hind ones below; claws rapidly curved down apically, with the pulvilli extending beyond middle of claws in both sexes. *Hypopygium* of ♂ (text-fig. 162) showing side view, dorsal view of beaked joints and ventral view of aedeagus, with the beaked apical joints hollowly depressed above; aedeagus not visible from side, situated just above and between two apically directed processes, one on each side arising from base of aedeagus and each continuous with a lateral ramus from each basal part, with each process itself hollowed out below and recurved apically, the apical margin of recurved part with a few small dentate processes.

Locality.—N.W. Cape Province: Bushmanland and Namaqualand. (In the South African Museum.)

15 ♂♂ 14 ♀♀ *D. luridus* n. sp.

This species is very near to *rubicundus*, from which it differs in the following points:—*Body* with the red on abdomen more extensive, especially in ♀♀, tergites 2–7 and especially 4–7 with very broad red hind margins, the entire apical half of abdomen thus almost, or entirely, red, and the venter in ♀♀ also with broader and more extensive red hind margins, with the front part of frons in ♀♀ also more reddish; pubescence also slightly longer, slightly more golden yellow on abdomen in both sexes, with the band on each side of thorax in basal half slightly more apparent, more obviously reddish brown, especially in ♀♀; wings in ♂♂ distinctly tinged more extensively yellowish than in *rubicundus*, the yellowish infuscation occupying almost entire wing, leaving only the apical part hyaline, the base and costal cell also subopaquely yellowish or pale ochreous yellowish, the discal cross vein also in neighbourhood of middle of discoidal cell. *Head* with the eyes in ♂♂ also separated by width of ocellar tubercle and also about 3 times as broad as tubercle in ♀♀; antennae with joint 1 also short, but apparently a little longer than in *rubicundus*, a little more than 2, sometimes almost 3, times as long as 2, with joint 3 distinctly shorter in relation to the others than in *rubicundus*,

less than 1½ times as long as 1 and 2 combined, often tending to be subequal to them, plumper and stouter, with a tendency to be more humped or even spindle-shaped; proboscis also about 2 mm. long. *Legs* also entirely yellowish, the last two tarsal joints dark, with about 1–2 spines on middle femora below and about 5–7 on hind ones below; claws and pulvilli as in *rubicundus*. *Hypopygium* of ♂ like that of *rubicundus*, but differing in that the beaked apical joints are much less depressed above, with more slender, narrower and longer apical parts, ending in a sharp point; aedeagus almost invisible, lying between the two processes, which are not widely divergent (like the limbs of a Y), but contiguous and parallel, more laterally compressed in apical halves, with the apical recurved part very much laterally compressed and apparently without distinct, small dentate processes along the recurved apical margin, with the dorsal basally directed aedeagal struts longer and more developed than in *rubicundus*.

Types in the South African Museum.

Length of body: about 5–7 mm.

Length of wing: about 5–7 mm.

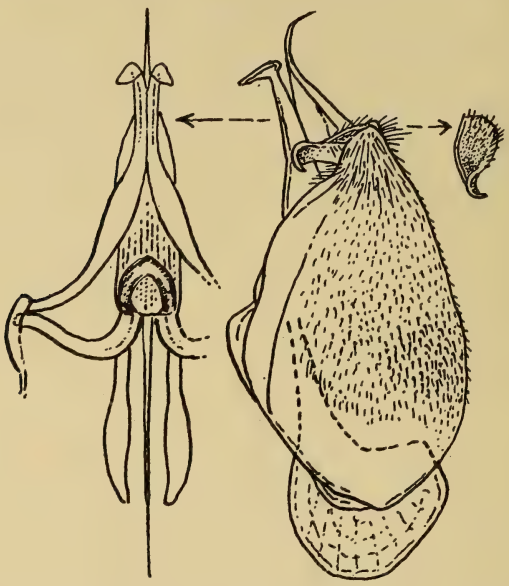
Locality.—Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931) (Types); Kamieskroon (Mus. Exp., Nov. 1936). Bushmanland: Een Riet (Lightfoot, Oct. 1911). Karoo: Murraysburg Distr. (Mus. Staff, Nov. 1935). S. Karoo: Worcester (Turner, Sept.–Oct. 1931) (British Museum); Montagu (Turner, 1–21 Oct. 1924) (British Museum); N.E. of Touw's River (Turner, 26/10/28) (British Museum).

D. vittipes (Bezz.).

(P. 63, Ann. S. Afr. Mus., vol. xviii, 1921.)

The ♂ of this species is easily recognised by the very broadly separated eyes, which are more broadly separated than in other species in this category, quite 2 times as broad as tubercle, by the more extensively infuscated wings, the entire basal two-thirds up to end of costal cell and across to basal half of third posterior cell being yellowish brown, the brownish more evident along the veins, with the spots on apical cross veins of basal cells distinct and slightly darker, with the basal comb yellowish, the bases of the spines dark, with the discal cross vein very much before middle of the discoidal cell, with the squamae rather large; pubescence predominantly straw-coloured whitish, appearing more sericeous whitish in certain

lights, that on thorax in front and to a certain extent on disc with yellowish or reddish yellow bases, without any dark hair on abdomen, with the bristles on ocellar tubercle, sides of frons, on occiput, sides of thorax, on mesopleuron, on posterior calli, on scutellum and in metapleural tuft reddened or reddish brown at their bases, becoming gleaming sericeous whitish in more than their apical halves; head



TEXT-FIG. 163.—Ventral view of aedeagal complex, side view of hypopygium, and dorsal view of beaked joint of ♂ *Doliogethes vittipes* (Bezz.).

with the antennae more or less reddish, the proboscis black and very long (7 mm.); abdomen reddened on the sides, with the venter almost entirely reddish like head above and in front and across middle of pleurae; legs with the femora markedly blackened below, the front femora with about 2 spines behind, the middle ones with about 5–7 spines below, and hind ones with about 5–7 spines below, with the claws only gradually curved and the pulvilli confined to base of claws. *Hypopygium* (text-fig. 163) resembles that of *pallidulus*, with the beaked apical joints slightly depressed above (*see* figure), with the lateral ramus on each side continued below aedeagus as a process ending on each side in a slightly broadened, downwardly directed apical part. It is a fairly large and bulky species.

Locality.—N. Namaqualand: Bushmanland.

1 ♂ 2 ♀♀ *D. meridionalis* n. sp.

Greater part of body above black; antennal joints 1 and 2, frons, face and to a great extent head below very pale yellowish red; scutellum ferruginous red; sides of abdomen above and greater part of venter in ♂ very pale yellowish red or almost salmon pinkish; pleural regions with only indistinct and obscure reddish infusions along sutures, only the sclerite in front of front coxae being pale reddish or yellowish red; proboscis with obscure reddish above basally, more distinctly evident in ♂; legs pale yellowish ochreous, with the lower surfaces of trochanters and femora blackened or black, with the spines on femora dark brownish to blackish, the spicules on tibiae yellowish and with the last 2 tarsal joints dark; pubescence, from above, brownish on thorax and whitish on abdomen, when viewed from the side that on occiput whitish, with some dark brownish, often whitish-tipped, bristles on each side behind eyes, that on thorax above whitish, with a transverse band of yellowish brown to ochreous brown or fulvous brown hairs from shoulders across front half of thorax, with another broader transverse band of similarly coloured hairs across middle of mesonotum, but also occupying the posterior calli, and lastly with a transverse band of similar pubescence across scutellum, the pubescence on abdomen above predominantly pale, almost entirely white in ♂, but with a distinct tuft of dark blackish brown hairs and bristles on each side of segment 2 and some white-tipped, blackish brown transverse ones laterally on 3–5, with the pubescence on 2 basally in ♀♀ tinted yellowish, the rest also whitish, but with the tuft of blackish brown hairs and bristles laterally on hind margins of 2 more extensive and conspicuous and also with the transverse rows of stout bristles on segments 3–6 entirely blackish brown to black but white-tipped, a few, however, discally on each side of dorsal interruption on 3 being whitish and pale brownish, with the bristly hairs on ocellar tubercle, those in a clump on each side of frons, some on antennae above and some intermixed ones on each side of face in ♂ and a patch on each side of vertex in ♀♀ as well as more numerous ones on each side of face in ♀♀ and also some on face in front in ♀♀ dark blackish brown, but conspicuously white-tipped, with the rest of the bristles and bristly hairs on head in both sexes whitish to sericeous white, the hairs in ♂, however, being slightly finer and more numerous, with the pubescence on frons more golden, that on pleurae along the middle and on propleurae silky or sericeous white, that

towards upper part of mesopleuron with a distinct yellowish tint, that on venter predominantly whitish, but more yellowish on sides, especially in ♀♀, with the bristles in front of wings, some on front part of thorax above and intermixed ones on upper parts of mesopleurae dark blackish brown but gleamingly white-tipped, some of the macrochaetae, the intermixed bristles on posterior upper part of mesopleuron, bristles on posterior calli and on scutellum more reddish and white-tipped, those on coxae with numerous intermixed blackish brown ones, those on venter in ♀♀ almost entirely blackish brown, white in basal half in ♂; wings greyish hyaline, with the basal half of costal cell, base and alula subopaquely whitish and the apical part of costal cell, base of marginal cell, more than basal half of first basal cell, greater part of second basal cell and extreme base of anal cell distinctly tinged greyish brown or brownish, with a larger diffuse spot at fork of second and third longitudinal veins and smaller ones on the discal cross vein and basal cross vein of fourth posterior cell darker and more blackish brown, with the basal comb comparatively well developed, pale yellowish white-haired and brown-spined, with the veins brownish, becoming paler and yellowish towards base, the discal cross vein before middle of discoidal cell, with the white-fringed squamae opaquely yellowish, only the basal part, next to body, being brownish; halteres pale yellowish brown, with very pale yellowish knobs. *Head* with the interocular space in ♂, at narrowest part, at least 2 times as broad as broad ocellar tubercle, quite 4 times as broad as tubercle in ♀; antennae with joint 3 only rapidly narrowed apically in apical fourth, slightly less than $1\frac{1}{2}$ times as long as 1 and 2 combined, and joint 1 about 3 or a little more times as long as 2; proboscis about $3\frac{1}{2}$–4 mm. long. *Legs* with the hairs on front and middle femora below finer and denser in ♂, with a few stouter and darker white-tipped ones in ♀; front femora with about 2 or 3 yellowish spines below just beyond middle; middle ones with about 3–4 spines on lower aspect and about 2 on lower outer



Text-fig. 164.—Side view of hypopygium and dorsal view of beaked apical joint of ♂ *Doliogethes meridionalis* n. sp.

aspect; hind ones with about 8–10 darker spines below; pulvilli confined to bases of claws. *Hypopygium* of ♂ (text-fig. 164, lateral view and dorsal view of beaked apical joint) like that of *vittipes* (cf. text-fig. 163), but with slightly longer hairs on dorsum of basal parts; beaked apical joints slightly more foveately depressed above; process, on each side of aedeagus, much smaller and inconspicuous, the extreme apical part scarcely broadened; basal strut slightly narrower and the posterior broader part longer and narrower.

Holotype in the Transvaal Museum, allotype in the South African Museum.

Length of body: about 8½–11 mm.

Length of wing: about 9–11 mm.

Locality.—S. Karoo: Calitzdorp Distr. (Matjiesvlei) (Brauns, 1/10/21) (Holotype); Matjiesfontein (Trimen, Oct. 1891) (Allotype). N. Karoo: Venterstad Distr. (Mus. Staff, Oct. 1935).

This species and *vittipes* (Bezz.) are peculiar in this genus in that the eyes in both ♂♂ and ♀♀ are markedly broadly separated, more so than in any other species. The presence of distinct spines on the front femora below and the infuscation along the lower surfaces of the femora also separate them from other species. In common with other species they also have 3 transverse bands of darker hairs across mesonotum and scutellum, which bands are separated by pale pubescence. *D. meridionalis* n. sp. is very near *vittipes* Bezz. from which, however, it differs by the less infuscated wings in the ♂ and the presence of transverse rows of blackish brown bristles on abdomen in ♀ and ♂ and also by the much darker fulvous brown, or golden brownish, transverse bands of hair on front part of body.

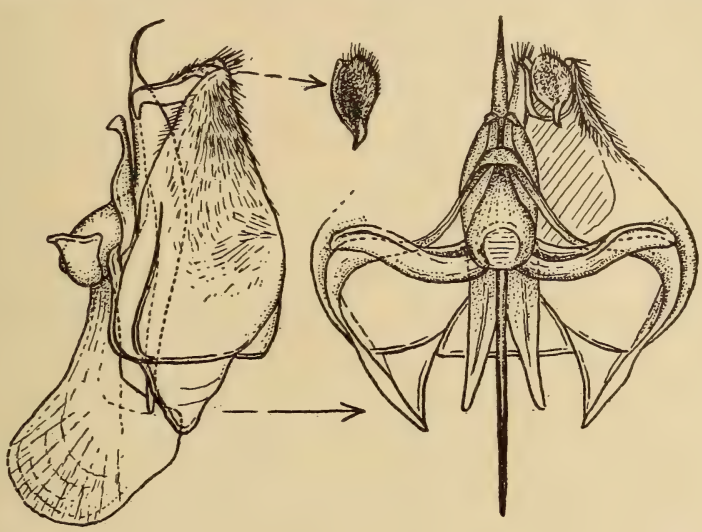
34 ♂♂ 41 ♀♀ *D. aridicolus* n. sp.

(Syn. = *Dischistus variegatus* Bezz. (nec Macq.), p. 64, Ann. S. Afr. Mus., vol. xviii, 1921.)

Black; middle part of occiput, just below ocellar tubercle, and the vertex, especially in ♀♀, greater part of proboscis palps, the frons, face, genae and to a certain extent antennal joints 1 and 2 in both sexes, the greater part of pleurae, the post-alar callosities, the scutellum, the sides of abdomen, more broadly in ♂♂ and also almost entire apex in ♂♂ and the greater part of venter, more extensive in ♂♂, yellowish brown to yellowish red, reddish or yellowish; legs predominantly yellowish brown, slightly darker brownish or even darkened or blackened on femora below, with the spines on femora

below on the whole darkened even if only at their bases, with the last 2 tarsal joints darkened or blackened and the apical parts of the claws black; pubescence not long on thorax, longer and more shaggy on abdomen especially towards apex, predominantly gleaming sericeous or silvery whitish above, that across thorax in front, that transversely on each side above wing-bases, that on disc of thorax and on scutellum in ♀♀ brownish to fulvous golden, the apices of individual hairs gleaming more silvery in certain lights, with the pubescence on thorax in ♂♂ predominantly or entirely silvery, only the bases of hairs on extreme pronotal part and some transversely above wing-bases tinged yellowish, with the pubescence on abdomen entirely silvery whitish in ♂♂ and much longer than in ♀♀, that in ♀♀ composed of longish gleaming silvery whitish bristles and bristly hairs, shorter and denser white hair on sides and shortish, erect, golden brownish or fulvous brownish pubescence discally, more distinct towards or on basal half above, with the pubescence on head predominantly silvery whitish, almost entirely so in ♂♂, with the bases or basal halves of occipital bristles, bristles on ocellar tubercle, those on sides of frons, on antennal joint 1 below and on face in ♀♀ usually much darkened, yellowish, yellowish brown to even blackish, with the extreme bases of only a few bristles on sides of face and on tubercle in ♂♂ darkened or blackish, with the bristles in front of wing-bases, on mesopleuron, across pronotal part, on posterior calli, on scutellum and even the transverse ones on abdomen in ♀♀ individually blackened or darkened at their bases or in their basal halves, those on abdomen much less so, in ♂♂ only those in front of wing-bases, on posterior calli and on scutellum are brownish or darkened at their extreme bases, with the pubescence on body below silvery whitish on head below, on propleural parts, on coxae and on venter, that on pleurae more or less fulvous or brownish golden, with the hairs and bristly hairs in mesopleural tuft gleaming brownish golden basally and silvery whitish apically, the gleaming silvery or sericeous whitish bristles in metapleural tuft with their basal halves also golden, fulvous or brownish golden, with the pubescence on hind coxae predominantly golden brownish, containing black bristly hairs which are pale-tipped and also with a few silvery-tipped dark or blackish bristles on intermediate coxae, with the scaling on legs silvery whitish; wings glassy hyaline, with the costal cell and basal part up to end of first basal cell and across to end of anal cell in ♂♂ subopaquely yellowish brown, cinereous brownish to even brownish, this infuscation, however, very variable, the greater part of anal and

axillary cells more often almost entirely hyaline, with only the base, costal cell, basal two-thirds of first basal cell and to a certain extent basal two-thirds of second basal cell in ♀♀ brownish or yellowish brown, with the base in both sexes appearing more yellowish, with three distinct blackish, spot-like infuscations at fork of second and third longitudinal veins and on each of the apical cross veins of first and second basal cells, these spots usually very distinct but sometimes more so in ♂♂, with the basal comb blackish brown or dark-



Text-fig. 165.—Side view and greater part of ventral view of hypopygium of ♂ *Doliogethes aridicolus* n. sp.

tipped, the veins dark brownish, darker towards apex and in infuscated part, with the discal cross vein at about the basal third of discoidal cell, with the vein separating submarginal cells very much curved, with the squamae opaquely yellowish and fringed with white hairs; halteres yellowish brown to yellowish, with pale yellowish brown or ochreous yellow knobs. *Head* with the interocular space in ♂♂ a little broader than ocellar tubercle even to nearly 1½ times as broad as tubercle, very broad in ♀♀ and about 4–5 times as broad as tubercle; face broad, convex, long, the antennae inserted at about middle of distance between front edge of face and tubercle; antennae with joint 1 about 4 times as long as joint 2, with joint 3 nearly or quite 1½ times as long as 1 and 2 combined, gradually narrowed apically, slightly curved, ending apically in a conical first terminal element and a short almost insignificant style; proboscis about 2–3 mm.

long, with black labella; palps with the apical joints narrowish and shorter than basal joints. *Legs* with some small spicules on front and middle femora above towards apex and usually with a slender spine on front ones apically behind; middle ones with about 3–4 longish spines in front and 1 or 2 smaller ones behind; hind ones with about 4–10 spines below from near base to apex; claws gradually curved downwards apically, the pulvilli just about reaching or just falling short of middle of claws. *Hypopygium* of ♂ (text-fig. 165) with the beaked apical joints shaped as shown in middle; aedeagus slightly curved upwards apically, with the ramus on each side forming a ventral aedeagal process the apex of which is slightly recurved, much resembling that of *meridionalis*, in which species the beaked apical joints, however, have a longer beak and the outer side more produced and rounded.

Types in the South African Museum.

Length of body: about 5–8 mm.

Length of wing: about 6–8 mm.

Locality.—Nieuwveld Karoo: Victoria West Distr.; Melton Wold (Mus. Staff, Oct. 1935) (Types). N. Namaqualand: Bushmanland; Jakhals Water (Lightfoot, Oct. 1911).

This species is slightly variable in the intensity of the yellowish brown infuscation at base of wings in ♂♂ and to a certain extent also in the black-based bristles in ♀♀. It is very abundant on the flowers of Mesembryanthemums during October and in spring. It is very near *meridionalis*, from which it may at once be distinguished by the absence of black transverse bristles on abdomen in both sexes. The ♀-paratype from Bushmanland was referred to *Dischistus variegatus* Macq. by Bezzi (p. 64, loc. cit.), a species which is at present not determinable from Macquart's description (p. 102, Dipt. Exot. ii, 1840) and which appears to be larger.

1 ♀ *D. melanops* n. sp.

Black; entire occiput, basal part of frons, antennal joint 3, face medially, hinder part of head below, mesopleuron and front part of pteropleuron black and not reddish as in many other species; front part of frons, antennal joints 1 and 2, sides of face, greater part of proboscis, humeral angles, lower part of pleurae, narrow hind margins on extreme sides of tergites 1, 5 and 6, greater part of venter and greater part of scutellum ferruginous reddish or yellowish brown; legs pale yellowish brown, the spines more yellowish and last 2 tarsal

joints dark or blackish; pubescence rather longish, shaggy, predominantly sericeous or silvery whitish above and below, that across front part of thorax with the basal parts of the hairs more fulvous or brownish golden in certain lights, with the occipital bristles near vertex, the bristly hairs on ocellar tubercle and some on sides of frons also reddish or brownish golden, with some hairs on disc of thorax and bases of post-alar bristles and the erect hairs on scutellum also gleaming golden brownish, with the pubescence and bristles on abdomen (where not denuded) entirely silvery or sericeous whitish, only the fine but sparse scaling golden, the bristles and bristly hairs on antennae, face and genae like pubescence below silvery whitish; wings hyaline, with the base, costal cell and basal part of first basal cell subopaquely pale yellowish white, with the basal comb yellowish, the veins dark brownish, becoming paler basally, with the discal cross vein much before middle of discoidal cell, without any spot-like infuscations on apical cross veins of basal cells, with the alula opaquely yellowish and fringed with white hairs; halteres yellowish brown, with pale yellowish knobs. *Head* with the interocular space a little more than 3 times as broad as ocellar tubercle; face long as in *pallidulus* and *imbutatus*, the antennae being inserted at about, or nearer, the middle of distance between front edge of face and tubercle; antennae with joint 1 quite 4 times as long as 2, with 3 only a very little longer than 1 and 2 combined, very gradually narrowed apically, the first terminal element small and scarcely separately visible; proboscis about 2 mm. long; palps very slender, inconspicuous. *Legs* with about 2 spines on middle femora in front and about 5 spines on hind ones below; claws slightly less rapidly curved down apically than in *pallidulus*-series and the pulvilli just extending a very little beyond middle of claws.

Type in the South African Museum.

Length of body: about 5 mm.

Length of wing: about 6 mm.

Locality.—N. Karoo: Venterstad Distr. (Mus. Staff, Oct. 1935).

This species with its slightly shortened pulvilli is easily distinguished from *imbutatus* by the black face, from the *luridus*-series by the shorter pulvilli and almost equally long basal cells in the wings. It is related to *aridicolus* and *consobrinus*, differing from the former in having a narrower interocular space and longer pulvilli and from the latter in having no black bristles on abdomen.

1 ♀ *D. consobrinus* n. sp.

Black; small triangular part on occiput just below ocellar tubercle, the vertex and entire head above reddish; face, genae and head below more yellowish; antennal joints 1 and 2, greater part of proboscis (excepting blackish labella), thorax on each side in front of wings, narrowly above wings, the posterior calli, scutellum, the pleural parts, sides of abdomen, narrow hind margins of last few segments above, the apical segment and greater part of venter reddish yellow; legs pale yellowish red, the tibiae and tarsi slightly more yellowish, with the apical part of last tarsal joint and apices of claws black; pubescence above (as far as this has not been denuded) sericeous whitish to pale sericeous yellowish, that on occipital region, that across front part of thorax, more or less across disc and across base of thorax with sericeous whitish gleams, with the hair in front of wings more sericeous yellowish, with the intermixed bristles on occiput, thorax in front, those in front of wings, on posterior calli and scutellum reddish to reddish yellow, with the bristly hairs on ocellar tubercle and sides of frons also dark reddish to reddish brown, those on face stoutish and gleaming sericeous whitish or very pale sericeous yellowish, with the depressed pubescence on frons sericeous yellowish, with the hairs on abdomen above (as far as these are still visible) sericeous whitish or yellowish, the short depressed pubescence pale sericeous yellowish, with the transverse bristles on abdomen above very dark blackish brown to black and more evident posteriorly, with the hair on body below more or less gleaming pale sericeous yellowish on pleural parts, becoming very slightly paler and more sericeous whitish towards pectus and on propleural part, with some darkish bristles on hind coxae, with the hair on sides of abdomen and venter more gleaming sericeous white; wings hyaline, with the base, costal cell and from end of costal cell across to apex of second basal cell subopaquely yellowish brown, this infuscation more or less distinctly marked off, with the costal, first, second and third longitudinal veins and bases of the others yellowish and those towards apex and hind border very dark blackish brown, with a dark cloudy spot, just beyond middle, in first basal cell and extending into second basal cell and with another at base of first basal cell and at base of anal cell, with a more conspicuous spot-like infuscation on apical cross veins of first and second basal cells, with the basal comb small and black, the discal cross vein much before middle of discoidal cell, the squamae opaquely yellowish and very dark or black-margined

near alula, their fringes white; halteres yellowish and with the knobs very pale yellowish above and more reddish brown below. *Head* with the interocular space about 3 times as broad as tubercle, the inner margins of eyes subparallel, only very gradually diverging anteriorly; antennae with joint 3 subequal to joints 1 and 2 combined, more or less rod-like, not broadened basally, the extreme apical part rapidly narrowed, with the first terminal joint conical and distinct, though small; proboscis about 2 mm. long. *Legs* without any visible spines on front femora below in this specimen, with about 2 spines on middle ones below and with about 4 or 5 somewhat slender and long, separated spines on hind femora below; claws only gradually and very slightly curved downwards apically, with the pulvilli slender and about reaching middle of claws.

Type in the South African Museum.

Length of body: about 6 mm.

Length of wing: about 6½ mm.

Locality.—Southern Karoo: Ceres Distr.; Cold Bokkeveld (Versfeld, Oct. 1934).

This species resembles *aridicolus* and *melanops*, from both of which it is distinguished by the black transverse bristles on the abdomen, the well marked off basal and costal yellowish infuscation of the wings and more conspicuous spots. It is also related to the *pallidulus* and *imbutatus*-series in having reddish hind margins on abdomen and by the pulvilli, which reach or just fall short of the middle of the claws. Both *consobrinus* and *melanops* may be considered as intermediate between the *pallidulus* and the *aridicolus*-series.

1 ♀ *D. chionoleucus* n. sp.

This unique ♀-specimen and the following species are only provisionally placed in *Doliogethes*. In certain respects these ♀♀ show characters which are not present in this genus. The dense hair-like scaling on abdomen, the absence of red on the body and the equally long basal cells in wing are not normal characters of *Doliogethes*.

Body, including scutellum, black; hind margins of tergites tending to be very narrowly yellowish, especially towards apex; legs predominantly black, only the knees yellowish and the tibiae very dark blackish or reddish brown, the bases of tarsi also dark reddish brown, the spines on femora and spicules on tibiae whitish; pubescence comparatively dense, longish only on occiput, front part of thorax and towards apex of abdomen on sides and below, entirely non-

gleaming frosty white above and below, only the transverse bristles on abdomen slightly gleaming white, that on frons above dense and scaly, that on pleurae more woolly and like fine hair-like scaling, with fine, hair-like, dull white scaling on abdomen above and below, very dense on venter, with the dense scaling on legs cretaceous whitish; wings greyish hyaline, the base and costal cell and first basal cell more subopaquely whitish, the basal comb smallish and white, the veins pale yellowish brown, becoming more yellowish basally, with the discal cross vein near base of discoidal cell, the first and second basal cells being equal in length as in *Systoechus*, with the squamae opaquely whitish and fringed with white hair; halteres yellowish, with very pale knobs. *Head* with the interocular space a little more than 3 times as broad as ocellar tubercle; frons with the anterior transverse depression not conspicuous; face not bare medially, but with much pubescence and dense scaling especially on sides, the face itself not rounded but shortish as in *trivergatus* and *luridus*-series; antennae with joint 1 about 3 times as long as 2, with 3 about $1\frac{1}{2}$ times as long as 1 and 2 combined, thickened towards base and rapidly narrowed apically; proboscis about 3 mm. long. *Legs* without longish hairs on femora below, without any spines on front ones below; middle ones with 1 or 2 small spines in front; hind femora with about 4–5 spines below; claws rapidly curved down apically and pulvilli reaching apices of claws.

Type in the South African Museum.

Length of body: about 7 mm.

Length of wing: about $7\frac{1}{2}$ mm.

Locality.—S.W. Africa: Kaokoveld; Cayimaeis (Mus. Exp., March 1925).

1 ♀ *D. psammocharus* n. sp.

Body, including scutellum, black; legs with the femora predominantly black, only the extreme apices yellowish, with the tibiae yellowish, the apical halves tending to be more brownish, with the basal halves of front and middle tarsi and bases of hind ones yellowish, the apical halves or more than apical half blackish, with the spines on hind femora below and the spicules and spurs on tibiae pallid or whitish; pubescence comparatively dense, longish on occiput, front part of thorax and on abdomen especially towards apex, very dense and *Anastoechus*-like on body below, that on sides of face, genae, on sides of head behind eyes, on pleural regions, on coxae and venter frosty white, very dense and almost woolly, more in form of hair-like

scaling, that on front part of frons, sides of face and genae slightly more gleaming silvery whitish, with the hair-like scaling on abdomen above also frosty whitish, with the sericeous whitish gleaming bristly hairs on occiput distinctly tinted yellowish at their bases, with the scaling on upper parts of occiput and basal part of frons also tinted yellowish, the bristly hairs on thorax above (where not denuded) whitish, with the macrochaetal bristles in front of wings, post-alar bristles, the bristles on scutellum and transversely across hind margins of the tergites white, sometimes gleaming sericeous whitish in certain lights, longer and more conspicuous towards apical part of abdomen and with their bases, especially those on abdomen, distinctly tinted gleaming golden yellowish, with the bristly hairs on antennal joint 1 whitish and the bristles on venter also white, with the erect frosty white bristly hairs on sides of tergite 1 also gleaming golden yellowish at their bases and with the scaling on legs dull whitish but appearing greyish or graphite-like in certain lights; wings greyish hyaline, with a feeble subopacity, with the costal cell and base slightly subopaquely pale yellowish white, with the costal vein and veins in basal part yellowish, the rest of the veins dark brownish, becoming very dark blackish brown or blackish towards apical part, with the basal cells subequal or equal in length (*Anastoechus* or *Systoechus*-like) as in *chionoleucus*, with the alula, like base of wing, slightly milky whitish, dark-bordered and with the white-fringed squamae subopaquely yellowish white, with the basal comb pale yellowish golden but covered with whitish scales above; halteres yellowish, with very pale yellowish knobs. *Head* with the interocular space on vertex broad, quite 4 times as broad as ocellar tubercle; frons shallowly transversely depressed apically and also more or less triangularly impressed medially; face slightly more prominent and broader than in *chionoleucus*; antennae with the first joints very slightly separated, about 3 times as long as joint 2, with 3 nearly 2 times as long as 1 and 2 combined, broadest just before middle and more rapidly narrowed apically than basally, with the terminal joint, bearing a slightly curved style, situated slightly dorsally; proboscis rather stoutish, about 3 mm. long, with the labella pointed. *Legs* with about 2 spines in front and about 3–4 behind on middle femora and with about 6–8 spines on hind ones below; claws distinctly less rapidly curved downwards apically than in *chionoleucus*; pulvilli just falling short of apices of claws; front tarsi slightly thickened and distinctly shorter than front tibiae.

Type in the South African Museum.

Length of body: about 8½ mm.

Length of wing: about 8 mm.

Locality.—Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

This species resembles *chionoleucus* but differs in having much paler tibiae, stouter tibiae, comparatively shorter and stouter front tarsi, less rapidly curved-down claws, relatively broader interocular space on vertex, more distinct transverse depression on frons, more developed face, darker wing-venation and in having the bristles on abdomen above and on occiput distinctly gleaming golden at their bases. This ♀ was taken while settling on sand between bushes.

Chasmoneura n. gen.

(Syn. = *Dischistus* in part.)

This new genus is erected to contain species of the *lepidus* and *minimus* groups of Bezzi as given on pp. 93 and 98, " The Bombyliidae of the Ethiopian Region, 1924," which up to now have been referred to *Dischistus*. By referring to the *minimus*-group, only the Ethiopian species, referred to by Bezzi, are included. The Palaearctic *minimus* Schrk. s. str. is unknown to me and may or may not belong to this genus in the strict sense of my definition. The species of *Chasmoneura* by no means show strict uniformity, but in essentials they all differ from *Dischistus* s. str. and the preceding *Doliogethes*.

The chief characters of this genus are:—*Body* always entirely or predominantly black, without any red on scutellum and very rarely with obscure reddish or brownish on pleurae and sides of abdomen, usually with much or very conspicuous scaling, which is either flattened and lanceolate or fine and hair-like, usually dense on thorax, scutellum and abdomen in ♀♀, sometimes as dense silvery scaling on abdomen in ♂♂, sometimes with an additional silvery tuft of scaling on sides of face in ♀♀ and sometimes with conspicuous, gleaming, opalescent, metallic, greenish or bluish scales on body above especially in ♀♀, often with blackish, graphite-like scaling, which gleam greasy whitish in certain lights, with the pubescence in ♂♂ usually denser and longer than in ♀♀, the pubescence in ♀♀ usually sparse, short and almost wanting on certain parts of body, with a distinct metapleural tuft present in both sexes. *Head* with the eyes above in ♂♂ always in direct or actual contact for a distance at least subequal to, or as long as, ocellar tubercle, with the interocular space in ♀♀ on the whole narrowish, scarcely, or distinctly less than, 3 times as broad as tubercle, the inner margins of eyes in ♀♀ distinctly and sometimes

rapidly diverging anteriorly; frons with a distinct transverse furrow just behind antennal insertions in ♀♀ and usually with a slight medial depression leading up from it towards front ocellus, the frons sometimes brilliantly shining black in ♀♀; face always bare medially in both sexes, short, sometimes brilliantly shining black in both sexes; antennae with the first joints close together, short, scarcely 3, usually less than 3, times as long as 2 and not incrassate, with joint 3 long, slender, rod-like or only narrowed in apical part, with the first terminal joint usually small and conical, narrower than apex of 3 and slightly displaced towards outer side and ending in a slender spine-like style; proboscis short or long and slender, sometimes distinctly and minutely spinulated below, with the labella sometimes short and horny; palps small and not projecting very much beyond buccal cavity, two-jointed. *Wings* with the basal comb small and poorly developed, the wing itself hyaline or subopaquely greyish hyaline or even slightly tinged cinereous or even very darkly infuscated, especially in the ♂♂ of some species, rarely with spot-like infuscations on apical cross veins of basal cells, with the discal cross vein in the neighbourhood of the middle of discoidal cell, never very near base or very much beyond middle of discoidal cell, with the apical cross vein of this cell usually short, the cell thus distinctly narrowed apically and not broadly truncate, with the alula always well developed and lobe-like, the axillary lobe also broad and lobe-like and with the first posterior cell always open. *Abdomen* with the last sternite in ♂♂ usually emarginate posteriorly and its posterior lateral angles pointed, angular or even distinctly angularly produced. *Legs* without very long, brush-like hairs on femora below, without distinct spines on front and middle femora below, but always with some distinct spines below on hind femora; tarsi with the claws always rapidly curved downwards apically and with the pulvilli long and reaching apices of the claws in both sexes. *Hypopygium* of ♂♂ (text-figs. 166–172) with the beaked apical joints elongate or bird-head shaped; lateral ramus, on each side from basal parts, coalescing under aedeagus and forming a ventral aedeagal process, which is sometimes complex (the structure of which can be seen from the figures) and which always ends in an apical hook, spine or prong-like, more or less slender and curved, process on each side; aedeagus itself either long or short and more or less slender and tubular.

This genus differs from *Dischistus* s. str. in not having long, markedly dense and shaggy pubescence on body, on head, antennae and face or femora, in having the eyes in ♂♂ in actual contact above, a much

narrower interocular space in ♀♀, in having a distinct transverse depression on frons in ♀♀, contiguous, non-incrassate and much shorter first antennal joints, a well-developed and distinctly lobate alula, a distinct metapleural tuft, distinct spines on hind femora below and an entirely different type of hypopygium. From *Doliogethes* it differs in having denser scaling on body, sparser pubescence in ♀♀, in the presence of silvery tufts on sides of face in some ♀♀, the presence of dense silvery scaling on abdomen in some ♂♂ and the presence of scintillating, metallic, greenish or bluish scaling on body in some ♀♀, in having the eyes in ♂♂ always in actual contact for a distance at least subequal to length of ocellar tubercle, a distinctly narrower interocular space in ♀♀, the inner margins of eyes in ♀♀ being more rapidly divergent anteriorly, in having the transverse depression on frons in ♀♀ farther forwards and just behind antennae and often with a slight medial depression leading from it up towards tubercle, in having the frons and face in some ♀♀ and the face in some ♂♂ brilliantly shining black, an entirely bare face or a medially bare face, distinctly longer third antennal joints, in having the discal cross vein never very near base of discoidal cell, in having the last sternite in ♂♂ angular or angularly pointed posteriorly on each side, the claws always rapidly curved down apically and the pulvilli always reaching apices of claws in both sexes, and lastly in having the ventral aedeagal process of hypopygium ending in a distinct curved spine or hook on each side. The genotype is *argyropyga* (Wied.).

The species belonging to this genus are:—*frontalis* (Lw.), *coracina* (Lw.), *kaokoënsis* n. sp., *cinereitincta* n. sp., *rhodesiana* n. sp., *lepida* (Lw.), *loewi* n. sp., *gemmea* (Bezz.), *argyropyga* (Wied.), *horni* and *flavipes* n. sp. The species, unknown to me, which are also referable to this genus are:—*senegalensis* (Macq.) (p. 99, Dipt. Exot. ii, 1840), *vitripennis* (Lw.) (p. 46, Neue Beitr., iii, 90, 1855), *nucalis* (Bezz.) (p. 96, The Bombyliidae of the Ethiopian Region, 1924), *farinosa* (Bezz.) (p. 97, loc. cit.), *diadematа* (Bezz.) (p. 610, Trans. Ent. Soc. Lond., 1911–12), and most likely also *gibbicornis* (Bezz.) (p. 322, Voy. d. Ch. Alluaud et Jeannel. Afr. Or. Ins. Dipt., 1911–12, 1923). Bezzi's *Dischistus aurifluus* (p. 90, The Bombyliidae of the Ethiopian Region), according to the description, seems to be a peculiar species, agreeing with species of *Chasmoneura* in having a brilliantly shining face, but more with *Dischistus* s. str. in having slightly thickened first antennal joints, dense pubescence and no spines on femora below. As I have not seen this species and as it cannot be satisfactorily

fitted into any of the above genera from a description alone, I cannot allocate it to any genus. Moreover, it may not be a South African species at all.

Key to the species of Chasmoneura *seen by me.*

1. (16) Wings in relation to body less elongate, usually entirely hyaline or greyish hyaline or almost imperceptibly yellowish grey or greyish cinereous, not distinctly or darkly infuscated; proboscis longer, usually longer than 2 mm. and sometimes very long; pubescence on face usually predominantly dark or with more numerous black hairs on sides and, if predominantly whitish, wings are not tinged yellowish brown, that on abdomen in ♂♂ rarely in form of dense silvery white scaling above, and if silvery, the face is either brilliantly shining black or wings are not infuscated, sometimes with scintillating metallic, shining greenish or bluish scaling on body above in some ♀♀; legs with the femora even in ♀♀ never entirely yellowish, the bases or more often the entire legs very dark or black in both sexes; abdomen and pleurae in both sexes entirely black . . . . . 2.
2. (9) Frons and face not smooth and brilliantly shining black; legs pale yellowish or brownish, with only the femora darkened or blackened to a variable extent; pubescence on body above and on pleurae without brilliant scintillating, metallic, greenish or bluish or opalescent scaling in ♀♀ and without conspicuous silvery whitish scaling on abdomen above in ♂♂; hypopygium of ♂♂ (text-figs. 166–168) with narrower and more elongate beaked apical joints, with the aedeagus short, blunt and usually hidden by the much longer ventral aedeagal process, which ends apically on each side in a crochet-like or hook-like process . . . 3.
3. (8) Pubescence on thorax, scutellum and abdomen above predominantly pale yellowish or creamy yellowish and that on squamae yellowish or yellowish brown; halteres predominantly yellowish, with almost white or very pale knobs; proboscis comparatively long and usually longer than $2\frac{1}{2}$ mm.; femora black or blackened only basally or in basal halves, the apical parts or halves being yellowish, the hind ones with more than 3 spines below; hypopygium of ♂♂ (text-figs. 166–167) with the beaked apical joints slightly shorter in relation to basal parts, with the apical process on each side of ventral aedeagal process more developed, conspicuous, crochet-like or hook-like . . . . . 4.
4. (7) Pubescence on face in front in ♂♂ always with some yellowish or pale hairs, that on abdomen above entirely yellowish or whitish, with the stoutish macrochaetal bristles in front of wings black, with the pubescence above and on face in ♀♀ slightly more yellowish and with a distinct silvery white tuft on each side of face in ♀♀; spines and spicules on femora and tibiae very dark or black; wings with the vein between submarginal cells tending to be nearly straight or less **S**-curved; last sternite in ♂♂ with its posterior lateral angles only angular and not markedly produced lobe-like; hypopygium of ♂♂ (text-fig. 166) with the apical halves of beaked apical joints more distinctly directed downwards, the joints

also slightly broader and with a more conspicuous tuft or crest of longer bristly hairs along inner aspect . . . . . 5.

5. (6) Pubescence with that on face in front in ♂♂ with much fewer pale or yellowish hairs, almost entirely black, that on head below, prosternal part, pleurae, especially upper part of mesopleuron, and basal part of venter in ♂♂ deep blackish brown to black, with the hairs on coxae in ♂♂ also darker, with pale straw-coloured yellowish to yellow pubescence and brassy scaling in ♀♀, with black bristles on thorax, scutellum and transversely across abdomen in ♀♀ and with a conspicuous tuft of silvery white hairs on each side of face and pale yellowish hair on pleurae in ♀♀; hypopygium of ♂ with the beaked apical joints less tapering in apical half, with the limbs of the recurved hooks of ventral aedeagal process on each side less divergent and with the lateral struts distinctly broader and more foliate ♂ ♀ *pectoralis* (Lw.) (var. of it) (p. 594).

6. (5) Pubescence with that on face in front in ♂♂ with denser and distinctly more numerous pale or yellowish hairs, with the more numerous hairs on head below, those on prosternal part, on pleurae and on upper part of mesopleuron and entire venter pale creamy yellowish or pale yellowish white, the hairs on coxae duller and more brownish or blackish brown in ♂♂, with the pubescence in ♀♀ apparently the same as described above, but sometimes without a conspicuous silvery tuft on each side of face; hypopygium of ♂ (text-fig. 166) with the beaked apical joints more slender and elongate in apical halves, with the limbs of the recurved hooks of ventral aedeagal process on each side broadly divergent and the hooks themselves slightly more recurved, with the lateral struts distinctly less broad and foliate . . . ♂ ♀ *pectoralis* (Lw.) (p. 594). (Syn. = ? ♀ *frontalis* (Lw.))

7. (4) Pubescence on face in front in ♂♂ entirely black, that on abdomen above predominantly blackish brown to black, with some or all of the macrochaetal bristles pallid or yellowish, with the pubescence above and on face in ♀♀ slightly paler, more whitish or straw-coloured and apparently without a distinct silvery tuft on each side of face in ♀♀; spicules on front and middle tibiae at least predominantly pallid or yellowish; wings with the vein separating submarginal cells more normally or distinctly S-curved; last sternite in ♂♂ with its posterior lateral angles markedly and very acutely produced, lobe-like; hypopygium of ♂♂ (text-fig. 167) with the beaked apical joints more compressed, slightly longer and with only the apex bent downwards and outwards and with the dense, bristly hairs along upper inner aspect not prolonged into a distinct tuft . . . . . ♂ ♀ *kaokoënsis* n. sp. (p. 596).

8. (3) Pubescence on entire body above and below very dark blackish brown or black and that on squamae also very dark blackish brown; halteres predominantly and almost entirely dark brownish, only the apices of knobs with a slightly paler tint; proboscis very slender and only about 2½ mm. long; femora entirely black, only the extreme apices or knees being slightly paler and with only 2–3 visible spines in apical aspect below on hind ones; hypopygium of ♂ (text-fig. 168) with the beaked apical joints comparatively long and slender and with the apical crochet-

like hooks, on each side of ventral aedeagal process, small and inconspicuous . . . . . ♂ *coracina* (Lw.) (p. 598).

9. (2) Frons and face smooth and brilliantly shining black; legs entirely dark or black; pubescence on body above and on pleurae with brilliant, scintillating, metallic, greenish or bluish or opalescent scaling in addition to erect pubescence, especially in ♀♀, with dense conspicuous gleaming silvery white scaling on abdomen above in ♂♂; hypopygium of ♂♂ (text-figs. 169–172) with shorter and basally much broadened beaked apical joints, and if long, body has silvery white scaling, with the aedeagus considerably longer and projecting beyond ventral aedeagal process (and if short, abdomen has white scaling), which process is usually complex, broad and ending apically on each side in a long curved spine or slender bent hook . . . . . 10.

10. (13) Face on each side and down the genae along margins of eyes with a conspicuous elongated band or patch of distinct, fine, brilliantly gleaming, silvery white tomentum, broad basally and narrowed apically, more distinct and broader in ♀♀; pubescence with the bristly elements on sides of face, bounding this silvery tomentum, sparse and entirely black in both sexes, with a conspicuous vertical patch of white hair from base of wing to front coxae and also with white hair on hind part of metapleurae in ♀♀, with brilliant, scintillating, metallic, greenish or bluish scaling on frons, thorax, scutellum, pleurae and abdomen above in ♀♀, with the pubescence in ♂♂ denser, longer and more shaggy; proboscis longer, about 3–6½ mm. long, not spinulated below and with a short, horny labella; hypopygium of known ♂♂ (text-fig. 169) with the inner apical part of neck region of basal parts prominently produced into a flattened, laminate process, with only dense bristly hairs on the comparatively elongate beaked apical joints and with the apical spine on each side of complex ventral aedeagal process long, slender and only gradually curved downwards . . . . . 11.

11. (12) Pubescence in ♂♂ above and below entirely black, without any white hair on sides of tergite 1 or long, shaggy, white ones on abdomen above, but only with gleaming silvery white scaling on tergites 3–7 above, in ♀♀ with the hair on head below, on front and hind coxae, on pleurae vertically down from base of wing to front coxae, on posterior part of metapleurae, the apical parts of metapleural tuft, the hair on sides of tergite 1, a central row of scaly patches on abdomen above, a patch of scales on sides of tergite 4 and the scaling on extreme sides of abdomen ventrally below gleaming silvery white, the sparse hair on thorax and scutellum black, but the flattened scaling on frons, thorax and scutellum glittering, very deep metallic blue, with the hairs and bristles on abdomen above in ♀♀ also black; wings with a distinct, though very faint, subopaque smoky greyish or cinereous tinge, the base and costal part and alula being darker, with the veins blackish brown, the squamae dark or blackish and black-haired; proboscis slightly longer, about 5–6½ mm. long; hypopygium of ♂♂ (text-fig. 169)

♂ ♀ *cinereitincta* n. sp. (p. 599).

12. (11) Pubescence in ♂♂ black on ocellar tubercle, face, head below, thorax and scutellum above, greater part of pleurae, on coxae and on tergite 2

(especially laterally), that in metapleural tuft whitish in certain lights, that densely on sides of tergite 1 and the long shaggy hairs or bristles on abdomen white and more so towards apex, with silvery white scaling on abdomen above from tergite 2 to apex, the pubescence on occiput with a yellowish tint, in ♀♀ with the hairs on occiput whitish, those on head below, on propleural part, the vertical patch from base of wing to front coxae, those on all the coxae, in metapleural tuft, on hind part of metapleurae, on sides of tergite 1, the long bristly hairs on abdomen above and the patches of scaling on sides of tergites and on sides ventrally below silvery whitish, with the flattened scaling on frons, thorax and scutellum above paler, more opalescent, gleaming silvery bluish or greenish, even more silvery on sides; wings more hyaline, the base and costal parts more yellowish, the veins paler and more yellowish, the squamae more yellowish posteriorly and fringed with white hairs; proboscis slightly shorter, about 3–4½ mm. long . . . ♂ ♀ *rhodesiana* n. sp. (p. 602).

13. (10) Face on each side and down the genae without any conspicuous brilliantly shining silvery tomentum; pubescence with the bristly hairs on sides of face and along genae in ♂♂, not always black, more numerous, in ♀♀ aggregated in a distinct silvery or white tuft on each side just below antennae and with sparse black hairs above them, without a conspicuous vertical patch of silvery whitish hairs on pleurae or along hind part of metapleurae in ♀♀, the pubescence on pleurae more uniformly pale or dark in both sexes, with duller, gleaming, greyish white to silvery whitish and graphite-like scaling on body above and on pleurae and also with dark intermixed scaling, with the pubescence in ♂♂ on the whole less dense and shorter; proboscis much shorter, only about 2½ mm. long, distinctly and finely spinulated below and with the labella longer and not horny; hypopygium of ♂♂ (text-fig. 170) with the inner apical part of basal parts not prominently produced, with the beaked apical joints bird-head shaped and with a tuft of long, conspicuous, bristly hairs along upper inner aspect and with the apical spine on each side of complex ventral aedeagal process shorter, more slender and distinctly hook-like 14.

14. (15) Pubescence on frons and face, thorax above, on body below and venter in ♂♂ entirely black, that on venter below in ♀♀ and to a certain extent on pleurae and coxae also predominantly black or dark; eyes in ♂♂ in actual contact for a distance subequal to length of ocellar tubercle, the interocular space in ♀♀ distinctly broader, about, or nearly, 3 times as broad as tubercle; squamae more extensively darkened and halteres darker and with almost black knobs . . ♂ ♀ *lepida* (Lw.) (p. 603).

15. (14) Pubescence on frons and face, thorax above, on body below, coxae and venter in ♂♂ entirely whitish, that on venter below in ♀♀ and to a certain extent on pleurae and on coxae also predominantly pale or with much whitish hair; eyes in ♂♂ in actual contact for a distance longer than ocellar tubercle, the interocular space in ♀♀ distinctly much narrower and only about 2 times as broad as tubercle; squamae for the greater part whitish and the halteres with very pale yellowish to almost whitish knobs; hypopygium of ♂ (text-fig. 170) . . ♂ ♀ *loewi* n. sp. (p. 605).

16. (1) Wings in relation to body tending to be elongate and narrow, distinctly

tinged yellowish brown to dark coffee brownish, either uniformly or in front half, especially in ♂♂; proboscis shorter, only about 1½–2 mm. long; pubescence on face paler, predominantly yellowish or whitish and without black hairs on sides in both sexes and face not brilliantly shining black, that on abdomen in ♂♂ in form of dense silvery white scaling, that in ♀♀ more golden yellowish and without bluish or greenish metallic scaling on body above in ♀♀; legs with the femora in ♀♀ and in some ♂♂ entirely yellowish like the tibiae and when darkened in some ♂♂ they are more blackish brown; abdomen and pleurae in ♀♀ and in some ♂♂ sometimes with narrowish yellowish hind margins and infusions

17.

17. (18) Wings even more elongate, almost entirely dark brownish or coffee brownish in ♂♂, the front half being distinctly more so and the apical and hinder parts slightly paler brownish, with the base, costal cell, first and second basal cells and extreme base of anal cell in ♀♀ also coffee brownish, with a distinct indication of a darker spot on apical cross veins of basal cells in both sexes and with the base of second submarginal cell not acute; pubescence above, on occiput, thorax in front and above deeper yellowish, even more brownish or golden yellowish in ♀♀, with the bristles on head above in ♀♀ with more black ones, with a distinct tuft of black hairs on each side of antennae, more distinct in ♀♀, with the bristles on scutellum and the transverse ones on abdomen in ♀♀ black and the dense scaling above in ♀♀ very deep golden to brownish golden; face distinctly longer; proboscis very finely and microscopically spinulated below; apical angles of last sternite in ♂♂ not very much produced; legs with all the spines and spicules black and the femora in both sexes entirely yellowish; somewhat larger species, about 3½–7 mm. long and with a wing-length of about 4½–7½ mm.; hypopygium of ♂ (text-fig. 171) ♂ ♀ *argyropyga* (Wied.) (p. 606).

18. (17) Wings less elongate, more uniformly tinged pale yellowish brown, the front half not very perceptibly darker, without any sign of spots on cross veins and with the base of second submarginal cell distinctly more acute; pubescence on body in known ♂ much paler and more whitish, that on face and pleural parts distinctly more whitish and the tuft on each side of frons apically silvery whitish, the pubescence in known ♀ distinctly paler yellowish or more straw-coloured yellowish, the bristles on head above in ♀ more dark reddish brown, those on scutellum and across abdomen dark reddish brown, those on sides of face and on body below paler and more straw-coloured and with a silvery tuft on each side of antennae and with the scaling on body above paler golden yellowish; face very much shorter; proboscis without any visible spinules below; apical angles of last sternite in ♂ produced lobe-like; legs with the spines on hind femora and spicules on front and middle tibiae pallid or yellowish and with the femora in known ♂ darkened to beyond middle; smaller species, about 3–4 mm. long and with a wing-length of about 4–4½ mm.; hypopygium of ♂ (text-fig. 172) { ♂ *horni* n. sp. (p. 609). ♀ *flavipes* n. sp. (p. 612).

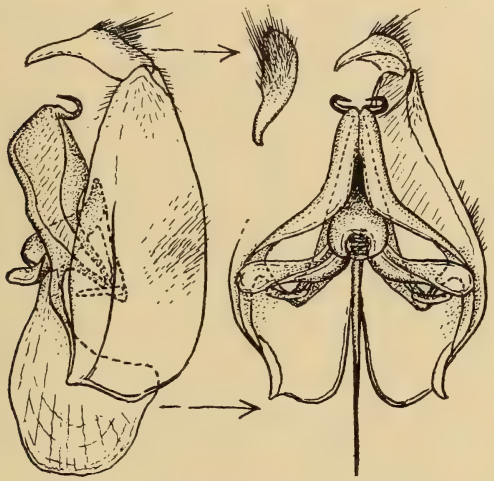
C. pectoralis (Lw.).

(P. 14, Wien. Ent. Monat., vii, 1863, and Bezzi, p. 67, Ann. S. Afr. Mus., vol. xviii, 1921, and pp. 98 and 99, The Bombyliidae of the Ethiopian Region, 1924.)

According to Loew the ♂-type was obtained in the O.F.S. In his description he distinctly states that the mystax, surrounding the buccal cavity, is yellowish and that there are no black hairs on the pleurae. To these characters Bezzi alludes on pp. 98 and 99 (loc. cit.). On p. 67 in the Ann. S. Afr. Mus., vol. xviii, however, he refers, and partly describes, a ♂-specimen from Pretoria, which has predominantly black hairs on face, distinct black hairs on pleurae, especially upper part of mesopleuron, and more black hairs on the coxae, to *pectoralis* (Lw.). In this connection he also states that he can find no distinguishing characters between *pectoralis* (Lw.) and *senegalensis* (Macq.) (p. 99, Dipt. Exot. ii, 1840) from West Africa. There are also, before me, a ♂ and a ♀ from Weenen (Natal) determined by Brunetti as *diadematus* Bezz. (Bezzi, p. 610, Trans. Ent. Soc. Lond., 1911, and pp. 98 and 100 in The Bombyliidae of the Ethiopian Region, 1924), probably from specimens so labelled in the British Museum. From the series before me it is evident that ♂♂, with predominantly black mystax and black-haired pleurae, and ♀♀ from the same localities in Natal, Transvaal and Rhodesia all belong to the same species, namely that of the ♂ from Pretoria referred to as *pectoralis* and the ♂ and ♀ referred to as *diadematus*. On the other hand, a ♂ from Willowmore, one from Aliwal North (British Museum) and another from Grahamstown as well as 2 ♂♂ from Saw Mills in Southern Rhodesia, agree with Loew's description in that they have a predominantly yellowish mystax and pale hair on the pleurae and front coxae. Structurally and specifically these ♂♂ do not differ from the forms with predominantly black hair in mystax and on pleurae.

Some ♀♀ before me appear definitely to belong to the form with black-haired pleurae, but as ♂♂ of the form with pale-haired pleurae also occur in the same area and, judging also from 2 ♀♀ from Aliwal North, it is evident that the ♀♀ are indistinguishable. It is also very probable that the ♀ of *frontalis* Lw., also described from the O.F.S. (*see* p. 13, Wien. Ent. Monat., vii, 1863), is the ♀ of *pectoralis*. The description, except for the silvery white tuft on each side of the face, may apply equally well to ♀♀ of the ♂♂ with black-haired pleurae. The fact that the silvery tuft may be denuded makes this more than likely.

Until the type-specimens of *senegalensis* (Macq.) and *diadematus* (Bezzi) are examined and correctly compared with *pectoralis* (Lw.), I prefer to consider the ♂♂ with black-haired pleurae and their ♀♀ only as a variety (as described by Bezzi on p. 67, Ann. S. Afr. Mus., vol. xviii) of *pectoralis* s. str. with which the two former species from Senegal and Southern Nigeria are not to be confused. It is also probable that even specimens from Nyasaland, which have been labelled as *diadematus* (Bezz.), really belong to *pectoralis*.



Text-fig. 166.—Side view and greater part of ventral view of hypopygium of ♂ *Chasmoneura pectoralis* (Lw.).

The ♀♀ of the varietal form, with black-haired pleurae in the ♂♂ and of the typical ♂♂, all agree in having pale straw-coloured yellowish erect pubescence and fine hair-like depressed brassy yellowish scaling above, with black bristly hairs on ocellar tubercle, frons and antennae, with a tuft of silvery white scale-like hairs on each side of antennae, pale yellowish to straw-coloured yellowish hairs on face and a few black ones in front of silvery tuft on each side, in having slightly paler and more straw-coloured whitish hair on pleural regions and on sides of venter below, with the bristles on thorax and scutellum black, pubescence on abdomen with fairly dense adpressed brassy yellowish or golden scaling and with transverse rows of entirely black bristles above, venter with pale yellowish white transverse bristles; legs, as in ♂♂, with the femora blackened to beyond middle, the hind ones with about 4–5 spines below from just before middle to apex and without any spines below on front and middle ones; interocular

space about 3, or a little more, times as broad as tubercle; wings greyishly hyaline, with the base and costal part yellowish as in ♂, with the discal cross vein just before middle of discoidal cell and vein separating first and second submarginal cells with a tendency to be nearly straight and to meet first posterior cell at an angle approximating a right angle.

Hypopygium of ♂ of *pectoralis* s. str. (text-fig. 166, lateral view and ventral view) with the dorsum of basal parts almost smooth, without very distinct and conspicuous hairs; beaked apical joints somewhat elongate, much like those of some species of *Bombylius*, with an elongate and slender downwardly directed apical part and with a crest or tuft of stoutish bristles on inner upper part (*see* dorsal view); aedeagus short and blunt, not visible from below, hidden behind the ventral aedeagal process which is in the form of a process ending in a recurved hook on each side, continuous with the lateral ramus on each side. The hypopygium of the varietal form differs from the above in having the beaked apical joints slightly shorter, with the apical halves less elongate, with the hooks of ventral aedeagal process less broadly divergent and with the lateral struts distinctly broader and more foliate.

Length of body of both *pectoralis* and variety: about 5–8½ mm.

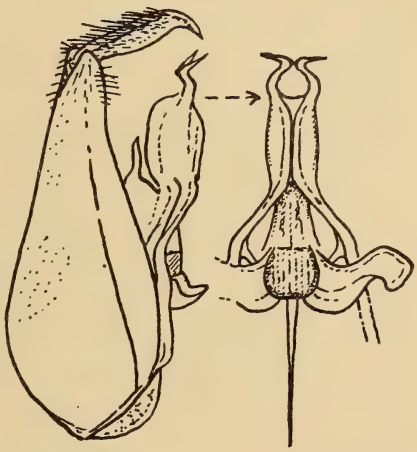
Length of wing of both *pectoralis* and variety: about 5½–9 mm.

Locality.—S.E. Karoo, E. Cape Province, Natal, Transvaal, O.F.S. and Rhodesia. (In the Imperial Institute, Deutsches Entomologisches Institut, Rhodesian, Transvaal, Durban, British and South African Museums.)

8 ♂♂ 3 ♀♀ *C. kaokoënsis* n. sp.

The ♂♂ of this species superficially resemble *pectoralis* (Lw.) from the ♂♂ of which they may be distinguished by the entirely black hair on the face, also darker and black hairs on head below, slightly paler and more whitish pubescence on front half of thorax above, which is also sparser, with darker and more brownish pale-tipped hair on scutellum, that on pleurae and pectoral region entirely black, the metapleural tuft being also entirely black, dark blackish brown or, if paler, not pale yellowish white, that on abdomen with dense dark blackish brown pubescence basally and laterally, which pubescence, in certain lights, is slightly paler-tipped and which becomes paler or even more whitish towards apex in some ♂♂, that on venter dark or dark blackish brown; abdomen with the upper posterior

angles of the last sternite in ♂♂, just below the hypopygium, markedly and acutely produced, more angularly lobe-like than in ♂♂ of other species ; legs with the femora more extensively blackened, with pallid or yellowish spicules on the tibiae, the hind femora with about 5–6 darkish brown or even blackish spines below, of which the apical one or 2 or 3 are usually paler or more pallid, without any visible spines on middle ones; antennae with joint 3 comparatively shorter, than in *pectoralis*, but also slender and rod-like; proboscis about $2\frac{1}{2}$–$3\frac{1}{2}$ mm. long; wings comparatively elongate, vitreous hyaline, only the costal cell and base being subopaquely very pale yellowish white, with the veins yellowish and with the vein separating first and second submarginal cells distinctly less straight and more sinuous, meeting the first posterior cell at a more acute angle. *Hypopygium* (text-fig. 167, lateral view and ventral view of ventral aedeagal process) with the dorsum of basal parts almost smooth and with only a few shortish hairs near apex; beaked apical joints elongate, laterally compressed and with a crest of longer bristly hairs along upper inner part; ramus, on each side from basal part, forming a large ventral aedeagal process, ending apically on each side in a slender process, the sharp apex of which ends in an outwardly directed hook; aedeagus short and blunt, hidden by the ventral aedeagal process. The hypopygium is in essentials the same as that of *pectoralis* (cf. text-fig. 166).



Text-fig. 167.—Side view of hypopygium and ventral view of aedeagal complex of ♂ *Chasmoneura kaokoënsis* n. sp.

Three much denuded ♀♀ from the same localities and from Okahandja and caught at the same time are referred to this species. They differ from the ♂♂ in having straw-coloured yellowish pubescence above on thorax and paler, more whitish, hair on pleurae, with the fine hair-like depressed scaling on thorax, scutellum and abdomen above yellowish, being more brassy yellowish on mesonotum, more ochreous or pale ochreous brownish on scutellum and on base of abdomen above, those towards apex of abdomen above more graphite

blackish; abdomen with stoutish black transverse bristles; macrochaetae either entirely pallid or yellowish or with most of them yellowish (all black in *pectoralis*). *Legs*, as in ♂♂, with pallid spicules on tibiae and with about 5 or 6 dark brownish or even yellowish spines on hind femora below of which the apical one is more yellowish or pallid. *Head* with the interocular space about 3 times as broad as ocellar tubercle, without any conspicuous tuft of shining silvery white hair on each side of antennae, only with some whitish hairs on sides of face, no black hairs being present on face in these ♀♀. *Wings* with the same characters as in ♂♂, the base slightly more subopaquely whitish than in ♀♀ of *pectoralis*.

Types in the South African Museum.

Length of body: about 6–7 mm.

Length of wing: about 7–8 mm.

Locality.—S.W. Africa: Kaokoveld; Kaross (Mus. Exp., Feb. 1925) (Types): N. Damaraland; Outjo (Mus. Exp., Jan. 1925); Okahandja (Turner, 1–12/1/28) (British Museum).

This species is easily distinguished from all other species in this category by the characters given in the key and by the pallid or yellowish spicules on the tibiae. Like *pectoralis*, it also occurs in slight varieties. One ♂-paratype from Kaross differs from the typical ♂ in being more extensively pale-haired above, the hair on scutellum appears to be paler, the hair on abdomen above too is considerably paler-tipped and towards the apex is even inclined to be whitish and even the metapleural tuft, in certain lights, is distinctly less blackish brown and more greyish or white.

C. coracina (Lw.).

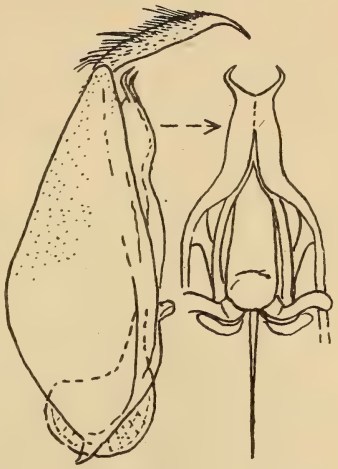
(P. 13, Wien. Ent. Monat., vii, 1863, and Bezzi, p. 66, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species, originally described from the O.F.S., is easily recognised in the ♂-sex by its entire dark blackish brown or black pubescence above and below. It seems to be closer to *kaokoënsis* n. sp. than to *pectoralis* (Lw.), but may at once be distinguished from the former by its entire black pubescence above, black spicules on the tibiae, fewer, only 2, spines in apical half on hind femora below and by the entirely dark brownish squamae and halteres. *Hypopygium* (text-fig. 168, showing lateral view and ventral view of aedeagus) very much like that of *kaokoënsis* (cf. text-fig. 167), also with very long and compressed

beaked apical joints, which are, however, longer in relation to basal parts; anterior hooks on ventral aedeagal process more divergent, less developed, the hooks being feebler and less curved; lateral struts much narrower and less foliate. ♀ unknown.

Locality.—O.F.S. and Transvaal (South African Museum).

The preceding three species (*pectoralis*, *kaokoënsis* and *coracina*) are to a certain extent not strictly genotypical and are characterised by not having dense silvery white scaling on abdomen above in ♂♂ and graphite-like, bluish, greenish or scintillating metallic scaling on body above in ♀♀ and in having a different type of hypopygium in ♂♂, in which the beaked apical joints are more elongate and narrower, the aedeagus is very much shorter and hidden behind a much longer ventral aedeagal process which is also less complex (cf. text-figs. 166–168).



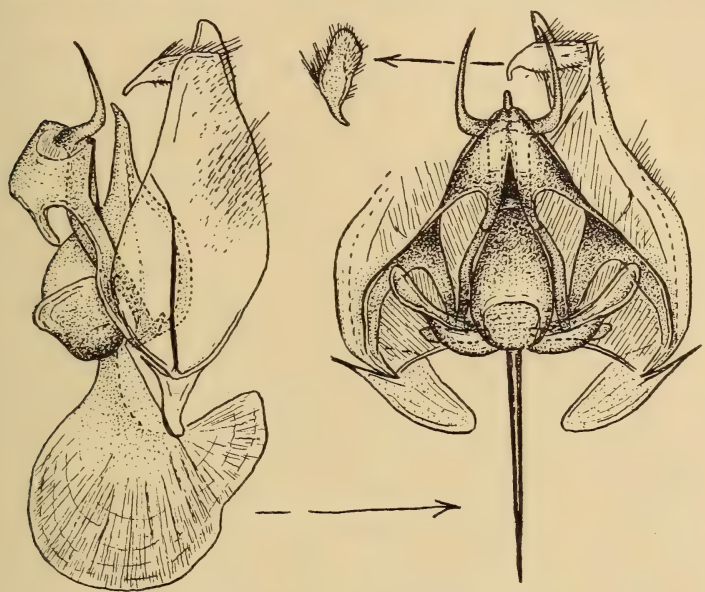
Text-fig. 168.—Side view of hypopygium and ventral view of aedeagal complex of ♂ *Chasmoneura coracina* (Lw.).

11 ♂♂ 7 ♀♀ *C. cinereitincta* n. sp.

Body entirely black, the integument above with a deep, bluish, submetallic sheen, especially on scutellum and abdomen; integument of frons and face in ♀♀ and face in ♂♂ brilliantly shining black; legs entirely dark, with the femora black and the tibiae very dark blackish brown to black, with the scaling also black; pubescence dense on thorax, scutellum, tergite 2, sides of abdomen and on coxae in ♂♂, shorter and sparser in ♀♀, only that on head below and pleurae longer than above, the entire pubescence and bristly hairs in ♂♂ black, only the dense scaling in a medial patch at apex of tergite 2 and across tergites 3–7 gleaming silvery white, the rest of visible scaling above on abdomen black, with the pubescence in ♀♀ also predominantly black above on head, thorax and scutellum, with the bristles and bristly hairs on body above, the sparse transverse ones on abdomen above, on sides, on venter and on middle coxae also black as in ♂♂, with the flattened scaling on frons, thorax above, on scutellum and to

a certain extent on propleural parts brilliantly scintillating, very deep, ultramarine, metallic blue to greenish blue, with a more or less medial row of patches of scales on abdomen above, a patch on each side of tergite 4 and the scaling on extreme side of abdomen ventrally below brilliantly gleaming silvery white, with the rest of the scaling on abdomen above black, but gleaming greyish or graphite-like in certain lights, with the hair on head below, in a vertical band from base of wings to front coxae, on front coxae, on hind margin of metapleurae, on hind coxae and on sides of tergite 1 conspicuous and gleaming silvery whitish, with the hairs in metapleural tuft dark or blackish basally but gleaming sericeous whitish towards their apices; wings very faintly, but distinctly, tinged slightly smoky greyish or cinereous, more so in some specimens, with the base, costal cell, first basal cell and alula more subopaquely brownish, the extreme base of wings blackish, with the feeble basal comb black, the veins dark brownish or blackish brown, the discoidal cell somewhat narrow and elongate, the discal cross vein at about middle of discoidal cell, the vein separating submarginal cells not very S-curved, with the squamae very dark blackish brown or black and the fringe black; halteres dark blackish brown, with very dark blackish brown knobs. *Head* with the eyes in ♂♂ in actual contact above for a distance at least as long as ocellar tubercle, with the interocular space in ♀♀ only about 2, or a little more, times as broad as tubercle; frons in ♀♀ more or less convex just in front of tubercle, only very slightly depressed centrally, transversely depressed in front of antennae and also with a slight medial depression leading up to more convex part from transverse depression; face smooth and bare in both sexes, only a single row of bristly hairs, more evident in ♂♂, on each side; genae with the upper parts showing a gleaming silvery tomentum, more developed in ♀♀; antennae with joint 1 short, only about $2\frac{1}{2}$, or scarcely more, times as long as 2, with 3 elongate, quite or almost 2 times as long as 1 and 2 combined, the basal two-thirds rod-like and apical third more narrowed, with the first terminal element conical, small and narrower than apex of 3 and bearing a style; proboscis long and slender, often upcurved, about $4\frac{1}{2}$–6 mm. long, with no visibly distinct spinules below, the labella comparatively short and horny; palps with the apical joint broadened and ovate. *Legs* with the slender hairs on front and middle femora below more evident in ♂♂, without any spines below on front and middle femora; hind ones with about 3–6 spines below from just before middle to apex. *Hypopygium* of ♂ (text-fig. 169, showing lateral and ventral

views) with scattered setiferous punctures on dorsum of basal parts; beaked apical joints laterally compressed, provided with some longish bristly hairs along upper inner part; aedeagus tubular and with the lateral ramus on each side from basal parts joined in front below base of aedeagus, forming a prominent and complex ventral aedeagal process, ending apically on each side in a long, slender, curved, ventrally directed spine; dorsal basally directed aedeagal struts,



TEXT-FIG. 169.—Side view and greater part of ventral view of ♂ *Chasmoneura cinereitincta* n. sp.

below the broad lateral struts, broadened apically and joined by a process on each side from each lateral ramus as seen in figures.

Holotype in the Transvaal Museum, allotype in the South African Museum, and paratypes in the Rhodesian, British and South African Museums and in the Imperial Institute.

Length of body: about 5–7½ mm.

Length of wing: about 6½–9 mm.

Locality.—E. Transvaal: Barberton (Munro, 25/4/20) (Types). Zululand: Mfongosi (Jones, Apr.–May, 1934; Dec.–Feb. 1935). Natal: Weenen (Thomasset, Feb. 1925). S. Rhodesia: Salisbury (Mossop, 28/2/32), (Stevenson, 20/2/27); Matopos (17/12/22).

Easily recognised by its entirely black pubescence in ♂♂ and deep metallic bluish scaling on thorax and scutellum in ♀♀. From the

description of *gemmea* (Bezz.) it differs in not having any pale or whitish hair on pleurae in ♂♂.

2 ♂♂ 2 ♀♀ *C. rhodesiana* n. sp.

Black; frons and face in ♀♀ and face in ♂♂ brilliantly shining black; legs very dark, the femora entirely black, the tibiae sometimes with a more brownish tint, with the scaling and spines black; pubescence in ♂♂ dense and denser than in ♀♀, that on abdomen in ♂♂ long, dense and somewhat shaggy, that on head above and below, on thorax above, on scutellum, sides of tergite 2, on pleurae and coxae in ♂♂ black, that on occiput in ♂♂ sometimes slightly yellowish, that in metapleural tuft in ♂♂ appearing dirty whitish or yellowish, their bases being blackish, with the short hair on sides of tergite 1 and the sparser, longer hairs and bristly hairs on abdomen above in ♂♂, denser towards apex, and even some on venter white, with the dense scaling on abdomen above, in ♂♂, on tergites 3–7 and medially apically on tergite 2 gleaming silvery whitish, the rest of the scaling on tergites 3 and 2 opalescent purplish red, becoming blackish towards base of 2, with the pubescence in ♀♀ black on head above, thorax and scutellum above and also with black intermixed bristly hairs on tergite 2 and a few intermixed black ones on sides of abdomen, with the pubescence on head below, to a certain extent on occiput, on propleural part, in a vertical band from base of wing to front coxae, on front and middle coxae, in metapleural tuft, on hind part of metapleurae and on hind coxae, on sides of tergite 1 and the long bristly hairs or bristles on abdomen above towards apex and on venter white, with the dense scaling on frons and more or less in stripes on thorax and those on scutellum brilliantly scintillating or gleaming, opalescent pale bluish or greenish, appearing almost silvery in certain lights on sides of thorax, those on abdomen above composed of blackish scaling on tergite 2 basally, mauvish or purplish red ones on sides and of silvery whitish scaling along midline, on sides of tergite 4 and on sides of tergites ventrally below; wings more hyaline than in *cinereitincta*, the base and costal parts paler and more subopaquely yellowish to yellowish white, the feebly developed basal comb also black, the veins slightly paler brownish, otherwise as in *cinereitincta*, with the squamae opaquely yellowish and white-fringed in both sexes; halteres blackish brown, with very dark knobs. *Head* with the eyes above in ♂♂ in contact as in *cinereitincta*, the interocular space in ♀♀ also about 2 times as broad as tubercle; frons in ♀♀ also

shining and almost bare; face as in *cinereitincta*; upper part of genae also with a silvery tomentum; antennae with joint 1 also about 2½ times, or even shorter, as long as 2, with 3 elongate and as in *cinereitincta*; proboscis also slender but shorter, only about 4 mm. long, the labella also short and horny. *Legs* as in *cinereitincta*, with 5–7 spines on hind femora below. *Hypopygium* of the ♂-paratype is unfortunately too much damaged to make out the structures, but what remains of it appears not to differ much from that of *cinereitincta* (cf. text-fig. 169).

Types in the Imperial Institute.

Length of body: about 5–7 mm.

Length of wing: about 6½–8 mm.

Locality.—S. Rhodesia: Bulawayo (11/11/22) (Holotype), (7/2/23) (Allotype), (1/1/21).

This species is very near *cinereitincta* and in the case of the ♀ is almost inseparable. It may, however, at once be distinguished by the presence of distinct and conspicuous white hairs and bristles on abdomen in both sexes, by the more distinctly hyaline wings, paler veins, the presence of paler scaling on thorax above in ♀♀, the presence of white hair on middle coxae in ♀♀, entirely white metapleural tuft in ♀♀ and opaquely yellowish and white-fringed squamae in both sexes. One ♀-paratype in the Rhodesian Museum was labelled "*Dischistus gemmeus* Bezz." by Bryant. According to Bezzi's original description of *gemmea*, which without doubt also belongs to *Chasmoneura* and to this *cinereitincta*-series (*see* p. 94, The Bombyliidae of The Ethiopian Region), *gemmea* differs from *rhodesiana* in having white hair on pleurae in both sexes, entirely black bristles and not white ones on abdomen in both sexes and pale hairs on femora below. From *cinereitincta* it differs in having whitish hair on pleurae in ♂♂, white hair on sides of tergite 1 in ♂♂, white hair in metapleural tuft, paler scaling on thorax in ♀♀ and the wings not slightly tinged cinereous.

C. lepida (Lw.).

(P. 193, Dipt. Faun. Südafr., i, 1860.)

A few ♂♂ and some denuded ♀♀ from Outjo, Okahandja, Kamanyab, Cayimaeis and Kaross in South West Africa agree very well with Loew's description of this species from Swakopmund. The species is characterised by the brilliantly shining black frons and face in ♀♀ and shining face in ♂♂, both of which are practically bare; legs with black femora

and very dark reddish brownish to blackish tibiae; pubescence entirely black in ♂♂, denser than in ♀♀, that on sides of face dense, that on head above in ♀♀ sparse and short, with a distinct tuft of silvery whitish hair on each side of face in ♀♀, the pubescence on body above in ♀♀ with much pale hairs especially on occiput, front part of thorax, sides of tergite 1, but macrochaetae and bristles on abdomen and venter black as in ♂♂, the pubescence on pleurae in ♀♀ with sparse, mostly dark, hair but whitish hair in metapleural tuft, that on head below whitish, with the hair on coxae in ♀♀ blackish, with dense gleaming silvery whitish scaling on tergites 3–7 in ♂♂, with the scaling on thorax and scutellum in ♀♀ composed of graphite-like blackish ones and gleaming bluish or pale greenish ones, the graphite black ones more or less gleaming bluish in certain lights, with the scaling on abdomen composed mostly of gleaming black ones which in certain lights show bluish or even whitish gleams, with the scaling on mesopleural part in ♀♀ gleaming bluish white to silvery in certain lights, the scaling on legs in both sexes dark or blackish but gleaming pale in certain lights; wings hyaline, the basal comb small and black, the basal and costal part subopaquely yellowish white, with the veins brownish, becoming more yellowish basally, with the discal cross vein at about or just before middle of discoidal cell, the first posterior cell broadly open, with the squamae dark and dark-haired in ♂♂, paler and whitish haired in ♀♀; halteres dark brown and with very dark knobs in both sexes. *Head* with the eyes in ♂♂ in actual contact above for a distance subequal to length of ocellar tubercle, the interocular space in ♀♀ nearly, or only a little less than, 3 times as broad as tubercle; frons in ♀♀ with the transverse depression distinct and with a distinct central triangular depression leading up to front ocellus, this depression very much more distinct than in *cinereitincta* and *rhodesiana*, with few and sparse hairs on sides of frons in ♀♀; face bare but with distinctly more pubescence on sides and upper parts of genae in ♂♂ than in *cinereitincta*, in ♀♀ with a silvery tuft on each side; antennae with joint 1 short, about $2\frac{1}{2}$, or a little more, times as long as 2, with 3 more than $1\frac{1}{2}$, sometimes nearly 2, times as long as 1 and 2 combined, subrod-like to rod-like, the apical part usually slightly more rapidly narrowed, with the first terminal element, distinctly visible, narrower than apex of 3 and slightly displaced towards outer side and ending in a stylar element; probosics about 3 mm. long, distinctly and finely spinulated below, the labella not hard and horny. *Legs* with about 4–5 spines below on hind femora from just before or about middle to apex. *Hypopygium* of ♂ very

similar to that of *loewi* (the next species) (cf. text-fig. 170) but with the beaked apical joints having slightly longer and more conspicuous bristly hairs on crest; aedeagus is apparently slightly more slender and slightly longer, otherwise with practically the same structures.

Locality.—S.W. Africa: Damaraland and Kaokoveld. (In the British and South African Museums.)

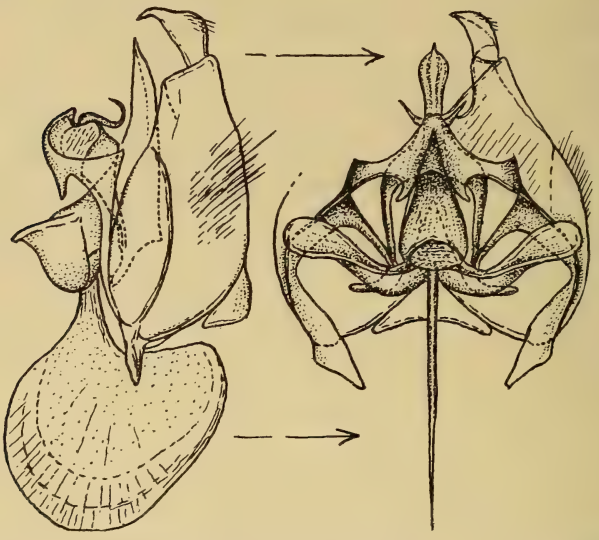
Bezzi (p. 94, The Bombyliidae of The Ethiopian Region) suspected that the ♀ of *gemmea* (Bezz.) may prove to be the ♀ of *lepida*. According to Bezzi's description of *gemmea* there is no doubt that his species is entirely different from *lepida* as described by Loew and defined in this paper. The species *gemmea*, from Nyasaland, belongs to the *cinereitincta* and *rhodesiana*-series. Loew had two types of ♀♀ but states that his ♂ has to be considered as typical. The ♂♂ and ♀♀ described above without doubt belong to the same species and the ♂♂ agree in every respect with the description of Loew's typical ♂.

1 ♂ 4 ♀♀ *C. loewi* n. sp.

These specimens, though more or less denuded, obviously belong to a slightly different species and there is a suspicion that the ♀ of Loew which has pale knobs to the halteres belongs to this species, whereas the one with the dark knobs, referred to in an appendix (p. 194, Dipt. Faun. Südafr., i, 1860), is really the ♀ of *lepida* s. str.

This species differs from *lepida* in that the pubescence in the ♂ is entirely white or whitish on body above and below, only the bristly hairs on ocellar tubercle are dark or blackish and the hairs on femora below also appear dark in certain lights, even the pubescence on sides of face is white, with the pubescence on venter in both sexes, on pleurae and on coxae, also in ♀♀, whitish, with the hair on head above, the macrochaetae, scutellar bristles and transverse hairs on abdomen (where not denuded) in ♀♀ also black as in *lepida*, with gleaming silvery scaling on tergites 3–7 on abdomen above in ♂ and more whitish, less gleaming bluish scaling on thorax of ♀♀ (where not denuded) than in *lepida*; squamae of wings opaquely whitish and white-fringed in both sexes; halteres with very pale yellowish white knobs in both sexes. *Head* with the eyes in ♂ in actual contact above for a slightly longer distance than in *lepida*, more than length of tubercle, with the interocular space in ♀♀ distinctly much narrower than in *lepida* and only about 2 times as broad as tubercle, the inner margins of eyes thus more rapidly diverging apically. *Hypopygium*

of ♂ (text-fig. 170) with the beaked apical joints bird-head shaped and without any or much shorter and fewer bristly hairs in crest on outer side; aedeagus projecting apically and with a rather complicated



TEXT-FIG. 170.—Side view and greater part of ventral view of hypopygium of ♂ *Chasmoneura loewi* n. sp.

ventral process (as shown in figures), which has a recurved hook on each side.

Types in the South African Museum.

Length of body: about 4–5 mm.

Length of wing: about 4½–5½ mm.

Locality.—S.W. Africa: Kaokoveld; Kaross (Mus. Exp., Feb. 1925) (Types); Cayimaeis (Mus. Exp., Feb. 1925).

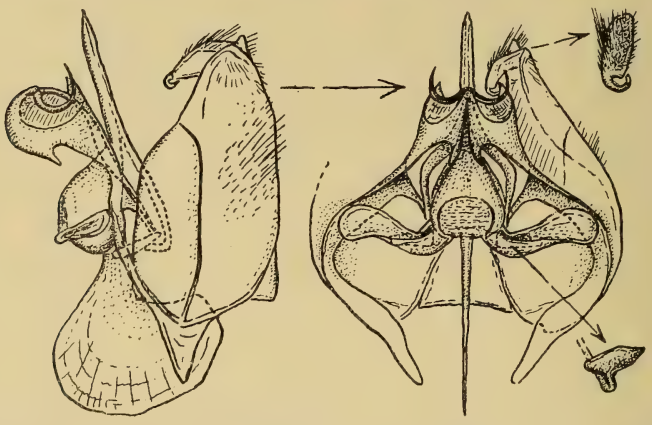
C. argyropyga (Wied.).

(P. 348, Aussereurop. Zweifl. Ins., i, 1828.)

There appears to be no doubt that this is the species described by Wiedemann as *Bombylius argyropygus*. It is, however, only the ♂ that has extensive silvery scaling on the abdomen and almost entirely infuscated wings, and judging from the description, there is a suspicion that Wiedemann mistook a ♂ for a ♀, notwithstanding the fact that the ♂ is holoptic. As this species is peculiar in this genus in having very darkly infuscated wings, a full redescription of it is appended:—

Body, including scutellum, black; hind margins of tergites laterally in some ♂♂ with an obscure reddish tint, especially on 3 and 4; pleurae sometimes also with obscure reddish along the sutures; anterior part of face brownish to obscure dark blackish brown; legs entirely pale ochreous yellowish to pale brownish yellow, the coxae dark, the apical parts of tarsi dark blackish brown, becoming almost black apically, with pale sericeous yellowish whitish scaling on femora and black spines and spicules; pubescence, viewed from above, coffee brownish on thorax and in ♂♂ silvery whitish on apical half on abdomen, when viewed from side that on occiput and thorax above predominantly velvety yellowish, with a darkish or greyish yellow or pale brownish yellow undertone due to numerous intermixed fine, erect, dark blackish brown hairs on disc, with the adpressed scaling brassy to golden yellow or brownish golden, denser in ♀♀ and also more evident on scutellum, the pubescence on abdomen above in ♂♂ in form of dense adpressed brownish pubescence across base of tergite 2, and dense, gleaming, silvery white scaling from there to apex, with dense ochreous or golden brownish ones on all the tergites above in ♀♀, darker brownish across base of 2, with the transverse bristles on abdomen in ♀♀ entirely very dark blackish brown or black, entirely white and finer in ♂♂, the pubescence on sides of abdomen towards base in ♂♂ straw-coloured yellowish to pale yellowish, more distinctly yellowish in ♀♀, with the bristly hairs on ocellar tubercle and on antennae above in both sexes black, but with a tuft of distinct black hairs on each side of antennae as well as a few intermixed black bristles on frons in ♀♀, that on antennae below and on face and genae in both sexes yellowish, those lower down on genae being slightly paler, the hair on head below almost whitish, that on pleurae slightly paler than above and more straw-coloured yellowish and even more yellowish in ♀♀, that on venter in ♂♂ predominantly silvery whitish, more yellowish in ♀♀, with the bristles in front of wing-bases in ♂♂ more reddish brown and in ♀♀ with some blackish ones and with the rest of bristles on thorax and scutellum very dark or blackish in both sexes; wings rather elongate, with the greater part in ♂♂ dark coffee brownish, the infuscation being darker on front three-quarters of wings, becoming imperceptibly paler from end of marginal cell across basal three-quarters of first submarginal cell, basal two-thirds of first posterior cell, base of second posterior cell to hind border, in ♀♀ with the infuscation more restricted to base, costal cell, basal halves of marginal and first submarginal cells, first basal cell, extreme base of

discoidal cell, second basal cell and bases of anal and axillary cells, slightly paler than in ♀♀ and imperceptibly merging into more greyishly tinged rest of wing, with a distinct darker spot-like infuscation on apical cross veins of basal cells in both sexes, with the small basal comb dark or blackish, the veins dark brownish, with the discal cross vein at about middle of discoidal cell, with the squamae opaquely brownish in ♂♂, more yellowish in ♀♀ and with a pale yellowish white fringe in both sexes; halteres pale yellowish brown to brownish and



Text-fig. 171.—Side view and greater part of ventral view of hypopygium of ♂ *Chasmoneura argyropyga* (Wied.).

with dull yellowish white knobs. *Head* with the eyes above in ♂♂ in actual contact for a short distance, a little less than length, or subequal to length or even a little longer than ocellar tubercle, the interocular space in ♀♀ scarcely, or even a little less than, 3 times as broad as tubercle; antennae with joint 1 short, about, or a little more than, 2 times as long as joint 2, with 3 long, even more than 1½ times as long as 1 and 2 combined, slender and rod-like in ♂♂, more thickened basally in ♀♀, with the first terminal joint comparatively conspicuous, conical and often longer than the stylar element; proboscis short, about 1½–2½ mm. long, finely spinulated below. *Thorax* somewhat convex above, giving the insects a humped appearance. *Legs* with the slender, bristly hairs on femora below very poorly developed or absent; front and middle femora without any visible spines below; hind ones with about 4–6 slender spines below from just before middle to apex. *Hypopygium* of ♂ (text-fig. 171, side view, ventral view of aedeagus, dorsal view and side views of beaked apical joint, etc.) with a few hairs on dorsum of basal parts and with

the neck region, bearing the beaked apical joints, widely separated; beaked apical joints with a tuft of longish bristles along inner upper aspect; aedeagus comparatively stout and tubular, and the lateral ramus, from each side of basal parts, together forming a complex ventral aedeagal process, produced on each side into a sharp and slender, slightly curved spine.

In the British and South African Museums and in the Imperial Institute.

Length of body: about 3½–7 mm.

Length of wing: about 4½–7½ mm.

Locality.—S.W. Cape Province, Southern Cape Province, Little Karoo, West Cape Province and Namaqualand.

Superficially this species bears some resemblance to *Bombylius globulus*. It is easily distinguished from all the preceding species of *Chasmoneura* by its darkly infuscated wings. From *nucalis* (Bezz.) (p. 96, The Bombyliidae of the Ethiopian Region), which is also to be placed in *Chasmoneura*, it appears to differ in not having a black mystax in ♂♂, the much shorter proboscis, pale hair on pleurae, entirely yellowish legs, etc.

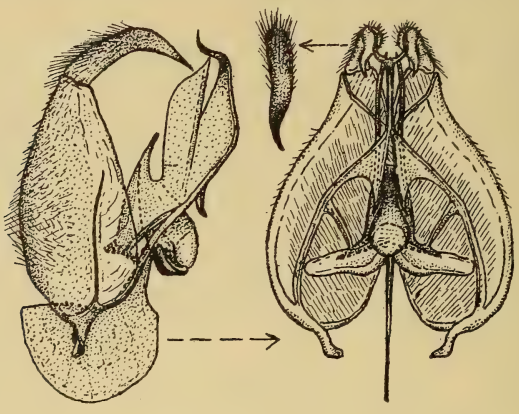
2 ♂♂ *C. horni* n. sp.

(Syn. = *Phthiria pubescens* Bezz. in part, p. 98, Ann. S. Afr. Mus., vol. xviii, 1921.)

Two ♂♂ from the Transvaal, one of which is very much denuded, constitute still another species in the category of *argyropyga* and the following *flavipes*. A description of this species is as follows:—

Body, including scutellum, black; produced apical angles of last sternite yellow; antennae very dark blackish brown; legs with the coxae, trochanters and femora to much beyond the middle very dark chocolate to blackish brown, with the apices of the femora yellowish, with the tibiae and greater part of tarsi yellowish, the last 3 or 4 joints of tarsi, however, brownish, with the claws yellowish, their apices blackish; pubescence not very dense on head and thorax, that on occiput and front and sides of thorax denser and longer, that on disc of thorax and on pleural parts very sparse, with the tuft on each side of frons gleaming silvery whitish in certain lights, with the sparse hairs on first antennal joints, face and sparsely on genae and head below also whitish, gleaming sericeous whitish, the pubescence on occiput more straw-coloured whitish, that on sides of thorax in front of wings and the sparse ones on disc more straw-coloured

yellowish, even having a distinct yellowish tint in certain lights, that on pleurae whitish but the hairs on mesopleuron and in metapleural tuft with a more distinct sericeous yellowish tint, with the sparse erect hairs on scutellum, the fine erect ones on abdomen and the dense erect hair on sides of tergite 1, on extreme sides of abdomen and on venter silvery whitish, with very dense depressed gleaming silvery white scaling on abdomen above as in ♂♂ of *argyropyga*, with the sparser and finer more hair-like scaling on scutellum also silvery



Text-fig. 172.—Side and ventral views of hypopygium of ♂ of *Chasmoneura horni* n. sp.

whitish, that on thorax above sparse and gleaming golden, especially towards base, with the hairs on coxae whitish, the fine scaling on femora silvery whitish but not very conspicuous with the spines and spicules on legs very pale yellowish or pallid, especially on front and middle ones; wings rather elongate in relation to body, distinctly tinged pale yellowish brown, very slightly more so towards base, with the costal cell appearing slightly more subopaquely yellowish, with the veins reddish or yellowish brown, with the discal cross vein just in front of the middle of the discoidal cell, with the squamae subopaquely yellowish brown and fringed with straw-coloured hairs; halteres dirty yellowish, with the knobs pale yellowish below and slightly darkened above. *Head* with the eyes above in actual contact for a distance about 2 times as long as ocellar tubercle, with the coarser upper facets of eyes gradually merging into lower finer ones; frons small and triangular; face comparatively short, much shorter than in ♂-*argyropyga* and even slightly shorter than frons; genae well developed; antennae with joint 1 short, only about 2 times as

long as joint 2, with 3 about, or just falling short of, 2 times as long as 1 and 2 combined, appearing rod-like in profile, ending apically in a short basal element bearing a short style, this basal element and style situated on the outer apical part of joint 3; proboscis more slender than in *argyropyga* and *flavipes*, about 1½ mm. long. *Abdomen* with the upper apical angles of last sternite distinctly much produced and lobe-like, much like that of *kaokoënsis*. *Legs* with sparse hairs on front and middle femora basally below, with the spicules on tibiae very fine and more poorly developed than in any other species, even being more delicate than in *flavipes*; hind femora with only 3 fine, bristle-like spines in apical part below; claws normally curved downwards apically and with the pulvilli reaching apices of claws. *Hypopygium* (text-fig. 172) is entirely different from that of *argyropyga* (cf. text-fig. 171); beaked apical joints elongate, narrow and arched or curved; aedeagus short and hidden by aedeagal process below, which is in form of a medial flattened plate, ending apically in two spines and a flattened plate on each side and slightly ventral to the medial plate. There is some relationship with the type of aedeagus and beaked apical joints found in *pectoralis*, *kaokoënsis* and *coracina* (cf. text-figs. 166–168).

Type in the Deutsches Entomologisches Institut, Berlin-Dahlem, and denuded paratype in the South African Museum.

Length of body: about 3 mm.

Length of wing: about 4–4⅓ mm.

Locality.—Transvaal: Magalieskraal (Lingnau, 9/2/25) (Type); Junction of Crocodile and Marico Rivers (Tucker, Feb. 1918).

This species is one of the smallest in this genus and can easily be recognised by its dense silvery scaling on abdomen above and wings which are tinged yellowish brownish. From *argyropyga* it may at once be distinguished by its smaller size, less darkly infuscated wings, paler pubescence, shorter first antennal joints, much shorter face in ♂♂, darkened femora, entirely different hypopygium, etc. From the following species, ♀-*flavipes*, it may be distinguished by the smaller size, paler pubescence, more slender proboscis, blackened femora and even feebler spicules on tibiae. There is nevertheless a suspicion that *flavipes* may prove to be the ♀ of this species. The wings are similarly tinged and the antennal joints bear the same relationship, but the localities are widely separated. The ♂-paratype (not ♀ as stated by Bezzi) was referred to *Phthiria pubescens* Bezz. by Bezzi (p. 98, loc. cit.), a genus with which it has no relationship whatever. The species is named after Dr. Walther Horn, Director of the Deutsches

Entomologisches Institut, through whose kind permission I have been enabled to examine the unnamed South African Bombyliidae in the Institute.

1 ♀ *C. flavipes* n. sp.

Black; sutural parts of pleurae, hind margins of metapleurae, extreme sides of tergite 1 and narrow hind margins of venter yellowish; legs entirely yellowish, only apical parts of tarsi dark blackish brown, the spicules in front and middle tibiae pallid; pubescence comparatively sparse, predominantly yellowish above, with a conspicuous tuft of silvery scale-like hairs on each side of antennae, the bristly hairs on ocellar tubercle, on sides of frons and to a certain extent on antennal joint 1, on scutellum, and transverse bristly hairs or bristles on abdomen (where not denuded), darker and more dark reddish brown to blackish brown, with the pubescence on genae, head below, pleurae and on coxae slightly paler than above and more straw-coloured yellowish, with the fine, hairy scaling on body above and on frons more golden yellowish, more gleaming golden on frons and thorax, the pubescence on venter tending to be whitish but more yellowish on extreme sides of tergites below where it is also denser, with the scaling on femora pale yellowish white, appearing almost whitish in certain lights; wings distinctly tinged yellowish or yellowish brownish, the base and costal cell more yellowish, with the feeble basal comb yellowish, the veins reddish brown, becoming more reddish yellow basally, with the vein between submarginal cells little S-curved, the base of second submarginal cell somewhat acute, with the discal cross vein at about middle of discoidal cell, with the squamae opaquely yellowish and fringed with pale or whitish hairs; halteres yellowish, with very pale knobs. *Head* with the interocular space about, or scarcely, 2 times as broad as ocellar tubercle, the inner margins of eyes comparatively rapidly narrowed apically; frons with the anterior transverse depression slightly depressed centrally as well; face short, bare medially and with only a single row of hairs on genae below silvery tuft; antennae with joint 1 very short, only about 2 times as long as 2, with 3 quite 2 times as long as 1 and 2 combined, rod-like, rather blunt apically, the stylar element situated more dorsally; proboscis about 1½ mm. long, not spinulated below, the labella comparatively long and pointed. *Legs* with only 1 pallid spine visible on hind femora below, near apex in this specimen.

Type in South African Museum.

Length of body: about 4 mm.

Length of wing: about 4½ mm.

Locality.—S.W. Africa: Kaokoveld; Kaross (Mus. Exp., Feb. 1925).

Easily recognised by the yellowish brownish-tinged wings and entirely yellowish legs. This species appears to belong to the *argyropyga*-series and may prove to be the ♀ of *horni* n. sp.

Lepidochlanus n. gen.

(Syn. = *Dischistus* in part.)

This new genus is erected to contain a species which cannot be placed in *Dischistus*, *Doliogethes* or *Chasmoneura*. A ♀-specimen, from Bushmanland, was referred to *Dischistus niveus* (Macq.) (p. 102, Dipt. Exot. ii, 1840) by Bezzi (p. 61, Ann. S. Afr. Mus., vol. xviii, 1921). From Macquart's description it is obvious that his specimen was a ♂ of a species of *Gonarthrus* Bezz. Moreover, Bezzi's determination is incorrect, and this specimen cannot be made to agree even with Macquart's brief description. According to Macquart, the wings of the ♂ are hyaline, whereas the ♂♂ of this species under consideration have yellowish-tinted wings. There is no " . . . *une petite touffe de poils noirs au vertex*" in the ♂♂, a character common in ♂♂ of *Gonarthrus*.

The chief generic characters of a large number of ♂♂ and ♀♀ of this species, which is referred to *Lepidochlanus* n. gen., are:—

Body with fairly dense bristly hairs and bristles on face, frons, occiput, front part and sides of thorax, sides of tergite 1, erect hairs on abdomen and longer transverse bristles across hind margins of tergites, with this pubescence long and conspicuous on occiput, face and transversely on abdomen, especially in ♀♀, with the bristly hairs and bristles on body fimbriate or frayed at their apices, the apices appearing slightly dilated and ending in 3 or 4 fimbriae or processes, giving the pubescence a singed appearance, with very dense adpressed scaling on body above and below, that on head, thorax, scutellum and abdomen above more hair-like, that around eye margins, on antennal joint 1, face, genae, very densely on pleurae, across hind margin of scutellum and densely on venter in both sexes and to a certain extent on abdomen above in ♂♂ and across hind margins in ♀♀, and that on coxae and legs in both sexes broader, more flattened and lanceolate, with only very sparse hair on pleurae and the metapleural tuft small, the entire pleurae being more densely covered with flattened scaling. *Head* broad, with the eyes in ♂♂ separated above, very broadly separated in ♀♀, with the inner margins

of eyes in ♀♀ only very gradually diverging anteriorly; frons in ♀♀ thus broad, convex and without a transverse depression; face broad, rounded and not prominently projecting, not bare; genae with the upper parts also broad and continuous with sides of face, separated from buccal cavity by a distinct and deep depression along their narrower lower parts; antennae with the first joints close together, short, very slightly thickened, with joint 3 elongate and slender, more slender than 1 or 2, with minute hairs and sparse scaling visible above and below, above in ♂♂ and below in ♀♀, with the terminal elements much reduced, the first conical element scarcely visible and the style minute and hair-like; proboscis slender, the labella pointed apically; palps short and their apical joints apparently not shorter than basal ones. *Thorax* slightly convex, with a slight humped appearance. *Wings* with 4 posterior cells, with the first posterior cell open, with the alula well developed and lobe-like, the axillary lobe also well developed, with the basal comb very feeble, with the anal cell tending to be narrowed apically, even acute or subacute apically, with the discal cross vein much before middle of discoidal cell, the discoidal cell itself broad, shortish, more or less triangular. *Legs* slender, with spines only on hind femora below and without any distinct bristly hairs on femora below, with the spicules on front tibiae rather poorly developed; claws slender, only very gradually curved downwards apically and with the pulvilli vestigial, much reduced and confined to base in both sexes, scarcely visible in ♀♀, but more evident in ♂♂. *Hypopygium* of ♂ (text-fig. 173) much like that of some species of *Bombylius*, with the beaked apical joints elongate and somewhat laterally compressed; aedeagus straight and without any ventral aedeagal process.

This genus differs from the preceding three genera in having distinctly fimbriate bristly hairs and bristles, very dense and flattened scaling on face and body below, especially the pleurae, in having the pulvilli vestigial or very much reduced, a broad and triangular discoidal cell and a different type of hypopygium in the ♂. From *Dischistus* s. str. it differs in not having long, very dense, shaggy and puff-like pubescence, in having very dense scaling on body below and also above, in having a well-developed alula, contiguous first antennal joints, spines on hind femora below, vestigial pulvilli and a different type of hypopygium. From *Doliogethes* it may be distinguished by the dense scaling on body, the fimbriate pubescence, the absence of a transverse depression on frons in ♀♀, a broader and more triangular discoidal cell and by the hypopygium. From

Chasmoneura it differs in having the eyes in ♂♂ separated and more broadly separated in ♀♀, in having no transverse depression on frons in ♀♀, broader and shorter discoidal cell, vestigial pulvilli and not very rapidly curved claws, denser scaling on body below, different hypopygium, etc. From *Bombylius* it may be separated by the open first posterior cell.

In certain respects this genus superficially resembles members of the *Crocidium*-group, but differs in having the anal cell not constantly and sharply acute apically, the discal cell much before middle of discoidal cell, much broader frons in ♀♀, no transverse depression on frons, more rounded face, shorter palps, less humped thorax, vestigial pulvilli, fimbriate bristles, etc., etc. The genotype and only species is *L. fimbriatus* n. sp.

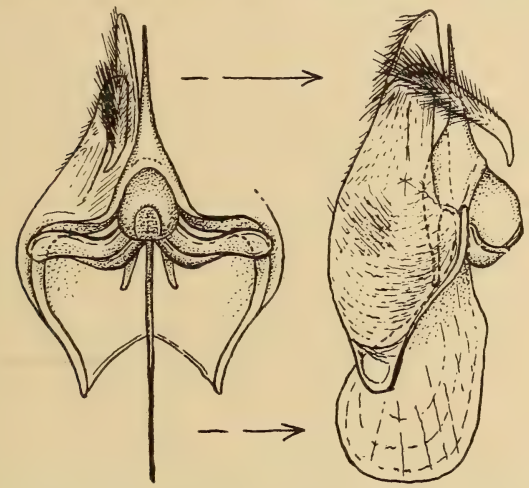
64 ♂♂ 107 ♀♀ *L. fimbriatus* n. sp.

(Syn. = *niveus* Bezz. nec Macq., p. 61, Ann. S. Afr. Mus., vol. xviii, 1921.)

Body, including scutellum, antennae and proboscis, black; abdomen above in ♂♂ with the hind margins of tergites 2–7 and the exposed part of hypopygium pale yellowish red or reddish, with the extreme margins of these tergites often ivory yellowish, with the abdomen in ♀♀ predominantly black, but sometimes also with slightly reddish hind margins towards apex; venter with reddish hind margins to sternites in ♂♂ more conspicuous and more often indistinct in ♀♀; legs predominantly blackish, the coxae, trochanters and entire femora black, only the knees yellowish, the tibiae very dark or blackish brown, even black, the tarsi also very dark brownish to blackish brown, only the articulating planes being yellowish or pallid, with dense cretaceous white scaling on legs and white spines on hind femora and white spicules on tibiae; pubescence with the bristly hairs and bristles on thorax, scutellum and abdomen erect and standing up straight, the bristly elements more conspicuous, longer and more shaggy in ♀♀, especially on face, occiput, scutellum and transversely towards apical part of abdomen, most of the bristly hairs and bristles on body fimbriate or frayed at their apices, with the erect pubescence entirely snow white or slightly gleaming white in both sexes, only the bristly hairs on ocellar tubercle and the bristles on sides of frons in ♀♀ and sometimes those on scutellum with a slight yellowish tint or even brownish or with dark brownish at their bases, with the broader, flattened, dense scaling on frons in

♂♂, face, sides of face, to a certain extent on antennal joint 1, around margins of eyes, very dense on pleurae, upper parts of mesopleuron, on coxae, on venter in both sexes, that on sides of abdomen above in ♀♀ and greater part of abdomen in ♂♂, entirely and conspicuously chalky or cretaceous white, with the finer, hair-like scaling on frons, occiput and front part of thorax in ♂♂ more whitish or creamy, that on basal part of mesonotum, scutellum and even base of abdomen above in ♂♂ more reddish ochreous to cinnabar reddish, that on frons, occiput, thorax above and abdomen above in ♀♀ deep ochreous yellow, golden yellowish to strikingly cinnabar red, being distinctly more orange to conspicuous cinnabar reddish on frons, occiput, extreme sides and base of thorax and on scutellum, that on abdomen in ♀♀ more uniformly ochreous yellow, brassy yellowish to golden yellowish and that towards base of abdomen in ♂♂ also ochreous yellowish; wings distinctly, even if only faintly, tinged yellowish in more or less the basal half in ♂♂, the yellowish tinge becoming more evident basally and extending to end of costal cell and across, across apical part of discoidal cell, to hind border, with the rest of wings in ♂♂ hyaline, with the entire wings hyaline in ♀♀, only the base and costal cell subopaquely very pale yellowish white, with the vestigial basal comb white or pale yellow-scaled, or even cinnabar reddish-scaled, and with dark spicules, with the veins pale yellowish or pale ochreous yellowish in basal half, more brownish or blackish brown towards apex, the costal and first longitudinal veins luteous or pale ochreous yellowish, with the first posterior cell broadly open, the discal cross vein in the neighbourhood of basal third of discoidal cell, the first basal cell a little, or sometimes apparently or scarcely, longer than the second, with the vein between discoidal and third posterior cells straight, with the squamae opaquely whitish or pale yellowish white; halteres pale yellowish or yellowish white and with almost white knobs. *Head* with the eyes in ♂♂ separated by width of ocellar tubercle, the interocular space in ♀♀ comparatively broad, about or nearly 4 times as broad as tubercle, sometimes apparently even a little broader than 4 times in some specimens; frons in ♀♀ thus broad, the inner margins of eyes only very gradually diverging anteriorly; antennae with joint 1 distinctly, though only slightly, barrel-shaped, only about 2–2½ times as long as 2, with 3 slender, more or less rod-like, about or quite 2 times as long as 1 and 2 combined, with fine, scattered, short, insignificant hairs above in ♂♂ and denser, short, whitish, spinule-like hairs below in ♀♀ at least and often with sparse, but insignificant whitish scaling above

in both sexes, with the terminal style very fine and hair-like; proboscis slender and about $1\frac{1}{3}$–$3\frac{1}{2}$ mm. long. *Abdomen* with a tendency to be narrowed and pointed apically, with the last sternite in ♂♂ truncate apically, its posterior lateral angles rounded. *Legs* markedly slender, without any spines below on front and middle femora, but with about 3–6 white spines below on hind ones; claws slender, only gradually curved downwards apically and with the pulvilli vestigial in ♀♀ and only visible basally in ♂♂. *Hypopygium* of ♂ (text-fig. 173)



Text-fig. 173.—Greater part of ventral view and side view of hypopygium of ♂ *Lepidochlanus fimbriatus* n. gen. and n. sp.

with the sides of basal parts very finely striate or rugulose in certain lights, with the inner apical parts of basal parts in neck region flattened and produced; beaked apical joints elongate and somewhat laterally compressed; aedeagus straight and sharply pointed and without any ventral process below.

Types in the South African Museum and paratypes in the British Museum.

Length of body: about $2\frac{1}{2}$–$6\frac{1}{2}$ mm.

Length of wing: about 3–7 mm.

Locality.—Karoo: Murraysburg Distr. (Mus. Staff, Nov. 1935). S. Karoo: Matjiesfontein (Turner, 16–30/10/28). W. Cape Province: Olifant's River Valley between Clanwilliam and Citrusdal (Mus. Exp., Oct.–Nov. 1931). N.W. Cape Province: Bushmanland: Jakhals Water (Lightfoot, Oct. 1911) (labelled as *niveus* by Bezzi). Namaqualand: Garies Distr.; Klip Vlei (Mus. Exp., Nov. 1931);

Bowesdorp (Mus. Exp., Nov. 1931); Kamieskroon (Mus. Staff, Nov. 1936) (Types). S.W. Africa: Great Namaqualand; Aus (Turner, 8–30/10/29, 12/29).

This species is very easily recognised by the dense chalky white scaling on body below and the orange reddish or cinnabar reddish scales on thorax and scutellum, by the peculiar fimbriate bristly hairs and bristles on the body and by the *Crocidium*-like type of wings, etc. This species appears to be very variable in size, in the coloration of the dense scaling on frons, thorax and scutellum and on abdomen above, the extent of the red on abdomen and even in the intensity of the yellowish tinge of the wings in ♂♂. The minute or smaller forms appear to differ from the larger forms in having no or practically no red hind margins to the abdominal segments in ♀♀ and much narrower ones in ♂♂ and in having the scaling on body above more yellowish, ochreous to chrome yellowish and not ochreous reddish or deep cinnabar reddish as in the typical form. The ♀♀ labelled as *niveus* Macq. by Bezzi even have more pale yellowish scaling above and the scaling in some of the smaller specimens is even pale creamy yellowish above. These insects are usually seen settling on the sand during the hottest part of the day or they may be obtained by sweeping the flowers of various kinds of Mesembryanthemums. To a certain extent this species shows procryptic or sympathetic coloration in that forms found on reddish or ferruginous sand display the beautiful cinnabar reddish scaling and others found on quartz sand or in a paler environment are more or less paler-scaled.

Gonarthrus Group.

The genus *Gonarthrus* Bezz. was referred to the *Phthiriinae* by Bezzi, but from its characters it is obvious that it cannot be placed in the Phthiriines and together with the related *Paratoxophora* Engel, I prefer to relegate these two genera to a distinct group in the *Bombyliinae* having the following characters:—

Body elongate, cylindrical, with the abdomen elongate; pubescence dense and long on antennae below, sides of face and down the genae, long and dense on occiput, absent from face, the metapleurae bare and a metapleural tuft absent. *Wings* clear, hyaline, narrowed basally, without or with only a very much reduced basal comb, with the alula much reduced or vestigial, the axillary lobe also narrow and not broadly lobate, with 2 submarginal cells, the vein between them not markedly sinuate or S-curved and arising almost at right angles

from third longitudinal vein and nearer its apex, the apical part of first submarginal cell thus broad, with the discal cross vein much beyond middle of discoidal cell, with the squamae transversely elongate, the lower part lobe-like. *Head* with the eyes in ♂♂ always contiguous or in contact above for some distance, with the interocular space in ♀♀ rather narrowish, usually less than 3 times as broad as ocellar tubercle, with the antennae elongate, joint 1 long or very long and slightly thickened and joint 3 elongate, with the palps elongate, joint 1 long and 2 much shorter and characteristically directed upwards, with the labella of proboscis usually long. *Abdomen* with the last sternite in ♂♂ elongate and scoop-like, narrowed apically. *Legs* rather long, with spines below on at least the middle and hind femora, with the spicules and spurs on tibiae strongly developed, with the last tarsal joint having longish bristly hairs apically above, with the claws rapidly bent downwards apically and with the pulvilli very well developed, broadish and reaching apices of claws. *Hypopygium* of ♂♂ (text-figs. 174–196) with the beaked apical joints elongate, subcylindrical or cylindrical and provided with a subapical lobe or spine-like process and a tuft or clump of spine-like bristles on dorsum, with the aedeagus long and sometimes very slender.

Gen. *Gonarthrus* Bezz.

(P. 109, The Bombyliidae of the Ethiopian Region, 1924; p. 88, Ann. S. Afr. Mus., vol. xviii, 1921.)

This genus was erected by Bezzi to contain a group of Ethiopian species formerly referred to and described as species of *Dischistus* by Bigot and Bezzi. In his monograph (loc. cit.), Bezzi referred this new genus to the *Phthiriinae*. The generic characters, outlined by him (loc. cit., p. 110), however, show that this genus is more related to the *Dischistus*-group and there is scarcely any justification for removing it from the *Bombyliinae* if the latter subfamily be taken to include several disparate groups. There seems to be more justification for the erection of an entirely new tribe or subfamily to contain it. From the true Phthiriines, as defined in this paper, it differs in not having a modified and spined third antennal joint, in having much denser and longer pubescence, in having an open anal cell and an entirely different type of hypopygium. The obviously two-jointed palps of *Gonarthrus*, to which Bezzi specially refers, is not a differentiating generic character for, contrary to Bezzi's statement that it is rare in the family, it appears to be very common, if not always

present, in the genera of the *Bombyliidae.* It is certainly very obvious in species of many genera and where not superficially visible the plane of separation into two joints becomes evident after treatment with caustic potash or creosote. Provisionally I prefer to regard *Gonarthrus* as belonging to a distinct group in the *Bombyliinae,* which in some respects is near the *Crocidium*-group.

The generic characters of *Gonarthrus* have been fully described by Bezzi and they may be briefly summed up as follows:—*Body* somewhat elongate, usually predominantly black, with fine, long, dense, shaggy pubescence, which gives these insects a puff-like appearance, that on occiput, front part of thorax and on abdomen usually longer and more shaggy, with the metapleurae bare and without a distinct metapleural tuft of long hairs below squamae and above posterior thoracic spiracle. *Head* with the eyes in ♂♂ above always contiguous or in actual contact for some distance, with the interocular space in ♀♀ not very broad, frons in ♀♀ without a distinct transverse depression, but with the ocellar region slightly raised; face comparatively short and not prominent, bare along middle part or at least without long hairs; genae well developed, separated from buccal cavity by a distinct groove-like depression and with dense fine hair, which hide the groove and buccal cavity; antennae elongate, usually slender, with first joints close together, rather long, more or less thickened, with 3 elongate, slender, rod-like or slightly thickened towards base, with the first terminal element small, conical and bearing a style; proboscis slender or stoutish, sometimes spinulated below, with the labella usually well developed, pointed apically or sometimes broad and horny and usually distinctly spinulated; palps usually conspicuously two-jointed, the shorter apical joint directed upwards. *Wings* with 4 posterior cells of which the first posterior cell is open, with the basal comb vestigial or poorly developed, with the anal cell open, with the second longitudinal vein only gradually bent up at its end, with the vein separating the two submarginal cells very little S-curved and joining the third longitudinal vein almost at right angles, with the discal cross vein always beyond middle of discoidal cell, with the alula much reduced and not projecting lobe-like, the axillary lobe also slightly reduced, with the lower lobe of squamae well developed and the wings usually hyaline, without any distinct infuscation. *Abdomen* with the last sternite in ♂♂ elongate and scoop-like. *Legs* with some distinct spines on hind femora below and sometimes with 1 or 2 on middle ones and with longish hairs on femora below; tibiae with the spicules well developed, with

the apical spurs long and strongly developed and with 1 or 2 black-tipped yellowish or pallid, long spurs apically below on middle tibiae; tarsi with the apical bristle-like hairs on last joints above distinct, with the claws well developed, rapidly curved downwards apically and with the pulvilli very well developed and reaching apices of claws. *Hypopygium* of ♂♂ (text-figs. 174–195) is very uniform in structure throughout the species. Characteristic for the genus are: the constant presence of a slightly produced lobe-like appendage at base of basal parts, the peculiarly shaped beaked apical joints (*see* figures), which have an apical lobe below the beak or apical spine, with the joints themselves either slightly hollowed out on the inner side or more often merely flattened and rarely without some flattening or depression on inner side of the appendage, with a conspicuous clump, patch or tuft of stiff, erect and spine-like bristles on the upper outer aspect of beaked joints, with the plate, bounding the base of beaked apical joints on the inner side on each side in neck region of basal parts, usually angularly or even very acutely produced apically and sometimes provided with some hairs; aedeagus usually well developed, more often curved upwards, sickle-like towards the apex, rarely straight and either with or without a medial lobe-like or spine-like, apically directed, ventral aedeagal process at its base, formed by the continuation of fused apical parts of the ramus from each basal part on each side; middle part of penal apparatus usually well developed, with the lateral strut on each side usually comparatively short and broad, lobe-like and directed basally, with the dorsal aedeagal strut on each side, formed by the continuation of the dorsal part of aedeagus, usually visible and lobe-like.

Superficially *Gonarthrus* resembles *Dischistus* Lw. s. str. but may at once be distinguished by the less shaggy pubescence on antennae, sides of face and on genae, by the contiguous and less incrassate first antennal joints, by the much narrower interocular space in ♀♀ and the contiguity of eyes in ♂♂, much shorter and less prominent face, the straighter second longitudinal vein and characteristic shape of vein separating the submarginal cells, by the presence of distinct spines on hind femora below, the presence of 1 or 2 black-tipped yellowish spurs apically below on middle tibiae and by the entirely different type of hypopygium in ♂♂. There is no doubt that this genus is more closely related to *Paratoxophora* Engel., described below, and possibly also to the Palaearctic *Amictus*, which is, however, unknown to me. Owing to the fact that the species of *Gonarthrus* are very uniform in their characters, they are not easy to distinguish

and specific characters are often very unsatisfactory. Apart from the species described below as belonging to this genus, there is a probability that *Bombylius niveus* Macq. (p. 102, Dipt. Exot. ii, 1840) and *Dischistus melanurus* Big. (p. 369, Ann. Soc. Ent. Fr., lxi, 1892) are also referable to this genus.

Key to the known South African species of Gonarthrus.

1. (16) Abdominal segments without any transverse rows of distinct black bristles across hind margins, these bristles being entirely white, whitish, yellowish or pale yellowish brown and, if darker ones are present, these are usually confined to apex or last 2 or 3 segments, inconspicuous and dark only at their bases, the apical parts of individual bristles being extensively tipped pale or whitish . . . . . 2.
2. (13) Proboscis comparatively stout and thick in relation to body, either very short or, when longer, usually not more than 3 mm. long and always distinctly and much shorter than head and thorax together, with the labella usually elongate, often conspicuously long, usually very broad, a little less than a third and more often distinctly more than a third as long as rest of proboscis (this part being comparatively and markedly stout, only very little more than 2, scarcely 3, times as long as labella); hairs on antennae below, sides of face and genae in ♂♂ entirely silvery white or pale golden yellowish and without any dark hairs, those on front part of occiput in ♂♂ (excepting only the row of fine dark ones) either white or yellow like the rest of the hair and not with a distinct dark tint at their bases . . . . . 3.
3. (6) Eyes in ♂♂ in actual contact above for a short distance either less than length of ocellar tubercle or equal to or subequal to its length, never about 2 times its length; antennal joint 3 markedly attenuated towards apex, the apical part being very slender; proboscis conspicuously short and thick, with the labella more distinctly rounded apically; pubescence predominantly silvery whitish and, when viewed from above, strikingly silvery whitish on head, thorax and abdomen, comparatively finer, denser and also longer, that on occiput and thorax above denser, finer and more conspicuously puff-like, almost hiding the head below; hypopygium of ♂♂ (text-figs. 174–175) with the outer apical angle of basal parts in neck region at base of beaked apical joints distinctly more prominent or even slightly angularly produced . . . . 4.
4. (5) Proboscis without any visible and distinct spinules, shining and very finely striolate, the labella with only a few scattered spinules along lower parts; eyes in ♂♂ in actual contact for a distance scarcely as long as tubercle and often shorter; hairs on ocellar tubercle in ♂♂ dark brown or mauvish brown and hairs on antennae above, in both sexes, entirely whitish, those on tubercle in ♀♀ usually with a distinct yellowish tint or with pale yellowish brown bases; antennal joint 3 thickened from beyond or just before middle, the apical slender part much shorter and joint less club-shaped, more spindle-shaped, especially in ♀♀; wings

with a tendency for the veins to be paler brownish, especially in ♂♂; halteres with the knobs dark blackish brown above and below in both sexes; abdomen usually without any slender yellowish or pale yellowish brown transverse bristles towards apex and with the bases of individual hairs there not tending to be yellowish or even darkish at their bases in ♂♂; middle tibiae with only 1 long, pallid, black-tipped, apical spine below; hypopygium of ♂ (text-fig. 174) with slightly longer and more pubescent hairs on dorsum and with the outer apical angle of basal parts more sharply prominent, with the apical lobe of beaked apical joints broader, more rounded and the stiff spine-like bristles on dorsum of these joints less extensive, and with the plate bounding base of beaked apical joint on inner side distinctly more angularly prominent apically

♂ ♀ *cygnus* (Big.) (p. 633).

5. (4) Proboscis dull, not shining, subshagreened in appearance and with minute scattered punctures bearing distinct and conspicuous spinules, denser towards apical part, the labella with denser, longer and also more conspicuous spinules; eyes in ♂♂ in actual contact for a distance at least equal to or subequal to length of tubercle; hairs on tubercle in ♂♂ black and those on antennae above in ♂♂ with a brownish or mauvish brown tint, those on tubercle in ♀♀ and on antennae above usually entirely white, rarely with a very faint yellowish tint at the bases of those on tubercle; antennal joint 3 more or less thickened before middle and nearer base, more club-shaped and with a slightly more slender and longer apical part; wings with a tendency for the veins to be distinctly more blackish; halteres with the knobs dark blackish brown above and below in ♂♂, and more often yellowish to pale yellowish brown in ♀♀; abdomen more often with a few yellowish, yellowish brown to slightly brownish bristles towards apex in ♂♂, the apices of which are extensively whitish and in some ♂♂ often with the bases of most of the hairs laterally and towards apex tinted yellowish to pale yellowish brown; middle tibiae with 2 black-tipped, pallid spines apically below; hypopygium of ♂ (text-fig. 175) with only a few, scattered, much shorter hairs on dorsum above, with the outer apical angles of basal parts distinctly less prominent, with the apical lobe of beaked apical joints distinctly narrower and more pointed (*cf.* text-figures) and the inner plate bounding base of beaked apical joint distinctly more rounded apically

♂ ♀ *namaënsis* n. sp. (p. 635).

6. (3) Eyes in ♂♂ in actual contact above for a distance much more than length of ocellar tubercle or at least about 2 times its length; antennal joint 3 less attenuated apically; proboscis longer and less stout and often long and slender, with the labella distinctly less broadly rounded, more attenuated and acuminate apically; pubescence on body above silvery whitish, greyish white to yellow and, when viewed from above, distinctly less conspicuously silvery whitish, comparatively less dense and also visibly shorter, that on occiput and thorax above less puff-like, the head being more distinctly visible from above and when hidden, the pubescence at least is yellowish; hypopygium of ♂♂ (text-figs. 176–179) with the outer apical angle of basal parts in neck region not prominent and not angular or produced . . . . . 7.

7. (8) Small gnat-like and delicate species, about 4–5 mm. long, with the pubescence, excepting only the black hairs on ocellar tubercle and along hind margin of eyes and on antennae above in ♂, entirely frosty or silvery white from above and the side and also comparatively sparse; mystax and hair in front on head sparse; halteres in ♂ with the knobs dark blackish brown above; femora without any spines on middle ones below and with apparently only 1 spine towards apex on hind ones below; hypopygium (text-fig. 176) with very short and sparse hairs on dorsum of basal parts . . . . . ♂ *culiciformis* Hesse (p. 636).

8. (7) Larger species, about 6–9 mm. long, with the pubescence on body above, when viewed from above at least, not entirely frosty white, either with a distinct dull greyish white, greyish yellow, creamy yellowish to slightly pale greenish yellow tint, especially on disc of thorax and abdomen above and more so in ♂♂ or the pubescence is entirely yellow, also distinctly denser; mystax and hair on head in front very dense; halteres in ♂♂ and in known ♀♀ with the knobs entirely very pale yellowish white to ivory whitish; femora with at least 1 spine below on middle ones and with at least 3 on hind ones below; hypopygium of ♂♂ (text-figs. 177–179) with denser and distinctly longer and more conspicuous hairs on basal parts, especially towards neck region . . . . . 9.

9. (10) Tibiae very dark, blackish and front and middle ones not paler than the very dark femora; palps with joint 2 short, not 2 times as long as antennal joint 2; pubescence above comparatively paler and predominantly more whitish and, when viewed from side, that on disc of thorax and abdomen distinctly paler and more straw-coloured, not extensively creamy yellowish to yellow, that on abdomen above being almost white; wings with the costal and first longitudinal veins slightly darker and the squamae with dark blackish brown margins; hypopygium of ♂ (text-fig. 177) with the beaked apical joints not much flattened or hollowed out on inner side, with the apical part of aedeagus curved upwards, sickle-like, and with a comparatively long and prominent medial, ventral, aedeagal process . . . . . ♂ *monticolus* n. sp. (p. 637).

10. (9) Tibiae either pale yellowish or luteous and much paler than the femora or they are at least reddish brown and front and middle ones at least distinctly paler than the blackish femora; palps with joint 2 much longer, at least 2 times as long as antennal joint 2; pubescence above distinctly less whitish, with a distinct greyish yellow or entirely yellow tint and, when viewed from side, that on disc of thorax and abdomen more distinctly creamy yellowish, sericeous yellow or entirely deep yellow, especially in ♂♂ and on abdomen above; wings with the costal and first longitudinal veins on the whole paler and more yellowish and with pallid or yellowish margins on the squamae; hypopygium of ♂♂ (text-figs. 178–179) with the beaked apical joints slightly flattened or even markedly depressed on inner side, the apical lobe also being much more rounded apically, with the aedeagus much more gradually curved upwards and without any distinct, medial, ventral, aedeagal process . . . 11.

11. (12) Pubescence entirely deep yellow or pale golden yellow, the hair on antennae below, in mystax and on body below entirely yellow, the squamae also with yellowish hair, the ocellar hairs and those on antennae above

yellowish or only deeper yellowish; proboscis with the spinules distinctly visible and also denser; basal half of second joints of palps scarcely or not paler than the dark apical part; tibiae dark reddish brown and not conspicuously paler than femora; hypopygium (text-fig. 178) with distinctly longer and more pubescent hairs on dorsum, especially in neck region of basal parts, with the basal strut stout, broad and very conspicuous and the lateral struts also comparatively broad

♂ *xanthinus* Bezz. (p. 638).

12. (11) Pubescence on body above, from above in ♂♂ at least, not entirely deep yellow, paler, more whitish, dull greyish or very slightly greenish yellow to creamy yellowish and, when viewed from side, that on disc of thorax and abdomen above in ♂ creamy yellowish or with a faint, but distinct yellowish tint, paler and white on thorax in ♀, yellowish discally and on abdomen above, that on antennae below, in mystax and on body below and also hairs on squamae, white, the ocellar hairs and those on antennae above black or blackish in ♂♂ and more straw-coloured yellowish to whitish in ♀♀; proboscis with the spinules minute, less dense and practically invisible; basal half of second joints of palps distinctly pallid or luteous; tibiae very pale reddish yellow or luteous and very conspicuously paler than dark femora; hypopygium of ♂ (text-fig. 179) with sparser and shorter hairs on dorsum of basal parts, with the basal strut less broad, much smaller and the lateral struts also much narrower

♂ ♀ *chloroxanthus* n. sp. (p. 639).

13. (2) Proboscis distinctly longer and more slender in relation to body, not shorter than 3 mm., at least as long as head and thorax together or even longer, with the labella proportionally much shorter and not conspicuously elongate, always distinctly much less than a third as long as rest of, proboscis (this part always slender and always more, even much more than 3 times as long as labella); hairs on antennae below, sides of face and even down genae in ♂♂ predominantly dark, with dark blackish brown to blackish ones, at least on sides of face, and hairs on front part of occiput in ♂♂ with a distinctly darker yellowish brown to mauvish tint at their bases . . . . . 14.

14. (15) Larger species, about 5½–8 mm. long; occiput in ♂♂ with the dark hairs, just behind eyes, shorter and not very dense and bases of rest of occipital hairs tinted more deep yellowish to yellowish brown; mystax in ♂♂ dense and with more numerous whitish hairs around buccal cavity; antennal joint 3 more rod-like, only very slightly thickened towards base; wings with the veins darker and more brownish to blackish brown; legs, including tarsi, very dark or black, the tibiae being inclined to be very dark blackish brown and femora black and with more numerous spines, 4–7, on hind femora below; ♀♀ with a few darkish or deep yellowish hairs on vertex and mostly with white ones, like rest of hair on body, on head and antennae; hypopygium of ♂ (text-fig. 180) with the basal parts broad and the neck region well marked off and with more hairs on dorsum, with the beaked apical joints slightly less compressed laterally and the apical lobe presenting a broader face in front

♂ ♀ *chioneus* Bezz. (p. 641).

15. (14) Smaller species, about 4–5 mm. long; occiput in ♂ with the dark hairs,

just behind eyes, distinctly longer and as long as occipital ones, also more numerous and denser and with the bases of the rest of the hair on occiput tinted darker and more brownish; mystax in ♂ sparser and predominantly or almost entirely blackish brown, fewer pale hairs being present; antennal joint 3 slightly shorter, tending to be less rod-shaped and comparatively more thickened towards base; wings with the veins paler and more yellowish; legs, including femora and tarsi, more or less chocolate brown or coffee brown and with fewer, only about 2–3, spines on hind femora below; hypopygium of ♂ (text-fig. 181) with the basal parts narrower and more elongate, the neck region less marked off from the rest and with the hairs only evident on neck region, with the beaked apical joints slightly more compressed laterally and the apical lobe presenting a narrower face from in front

♂ *willowmorensis* n. sp. (p. 642).

16. (1) Abdominal segments with conspicuous transverse rows of conspicuous black bristles across hind margins of segments 2–6 or 7 or with rows of predominantly black bristles across hind margins of last few segments, these bristles scarcely or not pale-tipped . . . . . 17.

17. (22) Tibiae very pale yellowish or luteous and strikingly paler than the very dark or black femora . . . . . 18.

18. (19) Pubescence relatively shorter, distinctly more yellowish, that on occiput, disc of thorax, scutellum and, to a certain extent, abdomen above with a distinct yellowish tint when viewed from side, with the hairs towards apex of antennal joint 1 below in ♂♂ at least with a slight yellowish tint, with the hairs on frons and those on antennae above in ♀♀ yellowish, with the macrochaetal bristles pallid or yellowish, the hair in mystax comparatively less dense and shorter, with the pubescence on abdomen also shorter and denser and without any black bristly hairs on venter apically; eyes in ♂♂ in actual contact above for a distance considerably more than 2 times length of tubercle; proboscis with the spinules not distinctly visible; squamae with pale yellowish margins; halteres with pale lemon yellowish knobs; hind femora usually with fewer, 2–3, spines in apical half below; hypopygium of ♂ (text-fig. 182) with slightly shorter and less pubescent hairs on basal parts, with the plate bounding beaked joints on inner side not very angularly prominent apically, without any medial, ventral, aedeagal process below aedeagus

♂ ♀ *kalaharicus* Hesse (p. 643).

19. (18) Pubescence on body above distinctly longer, more puff-like, silvery whitish to straw-coloured or pale creamy yellowish, that on occiput, disc of thorax, scutellum and abdomen above white or pale creamy yellowish when viewed from side, with the hairs on antennal joint 1 below entirely silvery whitish in both sexes, with the hairs on frons and antennae above in ♀♀ black, those on antennae above whitish, with the macrochaetal bristles in front of wings black or dark in part, with the pubescence on abdomen above distinctly longer, the bristles also longer and more conspicuous and often with some black bristles towards apex of venter; eyes in ♂♂ in actual contact above for a distance less than 2 times length of tubercle; proboscis distinctly more coarsely spinulated; squamae with very dark blackish brown to black margins; halteres

usually with darker dirty yellowish white to very dark knobs; hind femora usually with more spines, 3–6, below; hypopygium of ♂♂ (text-figs. 184–186 and 189) with denser and longer hairs on basal parts, with the inner basal plate at base of beaked joints more angularly prominent apically and with a distinct ventral process below aedeagus . . 20.

20. (21) Pubescence on body above and below entirely or predominantly silvery white, without a distinct creamy yellowish tint above, with the black bristles on abdomen above poorly developed even in ♀♀, with the macrochaetal bristles pallid or yellowish and without any black bristly hairs or bristles apically below on venter and the black ones above not extending down round sides of abdomen, without such a conspicuous tuft-like patch of black hairs on each side of frons in ♀♀ in addition to the other black hairs on head, above; wings with the veins much darker, almost black even up to extreme base, with the squamal margin black; halteres dark to dark brownish, with very dark or blackish knobs even in ♀♀; proboscis slightly more slender and with the labella more slender and more elongate; hypopygium of ♂ (text-fig. 184)

♂ ♀ *versfeldi* n. sp. (p. 646).

21. (20) Pubescence on body above with a distinct straw-coloured yellowish, creamy yellowish or even very pale yellowish tint above on thorax, scutellum and abdomen, even in ♂♂, with the black bristles on abdomen more developed, more conspicuous towards apex and extending down round sides and with even some black bristles towards apex of venter, with the macrochaetae in front of wings black, with a distinct tuft of black hairs on each side of frons in ♀♀ in addition to the other black hairs on head, above; wings with distinctly paler and more yellowish or yellowish brown veins, which are much paler towards base, with the squamal margin dark brownish; halteres paler, yellowish and with dirty yellowish or whitish knobs; proboscis stouter, with the labella shorter and less slender; hypopygium of ♂ (text-fig. 185)

♂ ♀ *natalensis* n. sp. (p. 647).

22. (17) Tibiae always very dark, blackish brown or black, never or scarcely paler than the black femora . . . . . 23.

23. (48) Proboscis shorter, usually stouter, shorter than head and thorax together or much shorter than abdomen . . . . . 24.

24. (29) Pubescence on body with the black bristles and bristly hairs more extensively developed, conspicuous, intermixed black bristly hairs being also present discally and basally above on thorax, posteriorly on scutellum, especially in ♀♀, the black bristles transversely above on abdomen very conspicuously developed, extending right round to extreme sides of the segments, those apically being more conspicuous and with some distinct black transverse ones across hind margins of last 2 or 3 ventral segments as well, with the fine hairs along hind margins of last tergite and sternite, in ♀♀ especially, always very dark or black, with distinct and more numerous short intermixed black hairs above on antennal joint 1 in ♀♀ and with the macrochaetae in front of wing-bases usually dark or black; squamae always dark or black-margined . . . . . 25.

25. (28) Pubescence above much paler, appearing very faintly pale greenish grey, greenish yellow to greyish yellowish from above, predominantly whitish

or straw-coloured whitish from side, only that on disc of thorax, scutellum and abdomen above faintly deeper sericeous yellowish or greenish yellow, with the hair on antennal joint 1 below and on face and genae entirely silvery white, that on body below more extensively and more distinctly silvery whitish and that on frons in ♀♀ much paler and almost white; wings with the veins darker brownish to blackish brown, even to extreme base of wings, with the squamal fringe silvery whitish or white . 26.

26. (27) Proboscis longer, about 2½–3 mm., with the labella elongated and normal, each lobe pointed apically and with only short and fine inconspicuous spinules; halteres with the knobs very dark blackish brown or black in both sexes; pubescence with the intermixed black bristly hairs on disc of thorax and scutellum, in ♀♀ especially, less evident and less numerous and with the pubescence on abdomen above slightly longer and denser; interocular space in ♀♀ slightly broader, nearly 3 times as broad as tubercle; slightly more elongated species, about 7–9 mm. long, with a wing-length of about 7–8 mm. . . ♂ ♀ *vumbuënsis* n. sp. (p. 658).

27. (26) Proboscis much shorter, only about 1½ mm. long, with a very characteristic, short and very broad labella, the two lobes together forming a cup-shaped or hoof-shaped structure, covered with long hair-like or bristle-like, but fine, spinules; halteres with very pale yellowish or yellowish white knobs; pubescence with the intermixed black bristly hairs on disc and base of thorax and on hind part of scutellum, in ♀♀ at least, distinctly more numerous and more conspicuous and with the pubescence and bristles on body above slightly shorter and less dense; interocular space in ♀♀ distinctly narrower, only about 2 times as broad as tubercle; slightly shorter and smaller species, about 6–6½ mm. long, with a wing-length of about 5½–6 mm. . ♀ *labiosus* n. sp. (p. 649).

28. (25) Pubescence on body above distinctly more yellowish, ranging from pale sericeous yellow, lemon yellow to golden yellow even when viewed from side, that on occiput, frons and entire thorax also distinctly yellowish or deeper yellowish, with the hair on antennal joint 1 below and even on upper parts of face distinctly yellowish in both sexes (when not, then at least with yellowish hair on thorax above), that on body below less extensively whitish, almost always tinted creamy yellowish, straw-coloured yellowish to very pale yellowish, that on venter being distinctly more creamy yellowish to sericeous yellowish especially in apical half and with the depressed pubescence on frons in ♀♀ deeper yellowish to golden yellowish; wings with the veins paler, more pale yellowish brown to brownish and distinctly paler and more yellowish at their extreme bases, with the squamal fringe creamy yellowish to sericeous yellow

♂ ♀ *leucophys* (Big.) (p. 651).
(And forms of it.)

29. (24) Pubescence on body with the black bristly hairs and bristles less developed and less conspicuous, those on disc of thorax, posterior part of scutellum and even basally on abdomen above absent or scarcely developed, or the black transverse bristles on abdomen more or less present discally only, not extending right round to extreme sides of segments and not markedly dense posteriorly, without any black bristles on last ventral segments, with the fine hairs on last tergite and sternite more often

pale yellowish or brownish and not black, with the macrochaetae in front of wings more often pallid or yellowish and with fewer or without any distinct black hairs on antennal joint 1 above in ♀♀ (when some of these characters are present, the black bristles on abdomen do not extend right round and venter is without black bristles); squamae more often with yellowish or pallid margins . . . . . 30.

30. (35) Erect pubescence on body above predominantly or entirely creamy yellowish, sericeous yellow to very bright silky lemon yellow, that on body below straw-coloured yellowish to pale lemon yellow or at least always with a distinct yellowish tint, with the fine scaling on legs pale greyish yellow to yellowish in part . . . . . 31.

31. (34) Pubescence on body above entirely very bright or vividly gleaming lemon yellow or brassy yellow, that on thorax in front in both sexes coloured like that on rest of body above, with the hairs on antennal joint 1 below predominantly or entirely sericeous lemon yellow, that on body below only slightly or scarcely paler lemon yellow than above, often with a slightly more greenish yellow tint, that on venter also lemon yellow, with the black bristles on abdomen slightly more developed on disc especially posteriorly; squamae with dark or even blackish margins and lemon yellow fringes; antennal joint 1 distinctly longer, more slender, 4, or more than 4, times as long as 2; proboscis also slightly more slender, about 2–3 mm. long, with the spinules distinctly more visible; hypopygium of known ♂ (text-fig. 187) with the beaked apical joints less compressed, less flattened on the inner side, with the inner plate at base of beaked apical joints very acutely produced (lobe-like) apically, with the aedeagus curved upwards sickle-like and with the ventral aedeagal process shorter . . . . . 32.

32. (33) Proboscis with the labella more elongate, narrowish and pointed apically, the spinules on it less conspicuous and shorter; pubescence at base of first antennal joints below, on face, sides of face and genae distinctly sericeous whitish; antennal joint 3 more rod-like; wings with the veins paler and more yellowish or yellowish brown; front tarsi in ♀♀ with the spicules on joint 2 below scarcely less coarse than on 1 below

♂ ♀ *citrinus* n. sp. (p. 652).

33. (32) Proboscis with the labella much shorter and from side very broad and oval, rounded apically and with distinctly longer and more conspicuous spinules; pubescence on first antennal joints below, on face and genae pale sericeous lemon yellowish like that on body above; antennal joint 3 more distinctly and more rapidly thickened basally; wings with the veins, on the whole, darker; front tarsi in ♀ with the spicules on joint 2 distinctly much finer than joint 1 below and more like those on 3–5

♀ *clavirostris* n. sp. (p. 654).

34. (31) Pubescence on body above duller, more creamy yellowish when viewed from side, that towards front part of thorax tending to be whitish, that on disc of thorax, scutellum and abdomen pale and dull sericeous yellowish, with the hair on antennal joint 1 below entirely white, that on body below creamy or straw-coloured yellowish, with the black bristles on abdomen above slightly less developed; squamae with yellowish margins and straw-coloured fringes; antennal joint 1 slightly shorter and com-

paratively stouter, less than 4 times as long as 2; proboscis, on the whole, shorter and stouter, about 2½ mm. long, with the spinules almost invisible; hypopygium of ♂ (text-fig. 188) with the beaked apical joints somewhat more compressed and flattened on inner side, with the inner plate at base of beaked joints not acutely produced apically, with the aedeagus more or less straight and with the medial, ventral, aedeagal process stouter, longer and more developed . . ♂ *mimus* n. sp. (p. 655).

35. (30) Erect pubescence on body above predominantly or entirely whitish to silvery whitish, especially when viewed from side, that on disc of thorax and abdomen above may, however, be faintly tinted yellowish or straw-coloured yellowish (in which case body below is white), this yellow colour being enhanced by yellowish depressed pubescence on these sites, that on body below always distinctly frosty or silvery whitish, never with a yellowish tint, with the fine scaling on legs predominantly greyish white to cretaceous white . . . . . 36.

36. (37) Pubescence with the black bristly hairs on antennae above, disc of thorax towards base and with the black bristles on scutellum posteriorly and also discally above on abdomen well developed and conspicuous in ♀♀ at least; scutellum with the apical part more or less brilliantly shining; proboscis with the labella slightly more acutely or sharply pointed apically; thorax rather convex above and with a more humped appearance . . . . . ♀ *rhodesiënsis* n. sp. (p. 657).

37. (36) Pubescence above in both sexes without any black bristly hairs on disc and base of thorax, no black bristles posteriorly on scutellum and without blackish hairs on antennal joint 1 above in ♀♀; scutellum uniformly dull black and covered with the usual greyish or dull bloom; proboscis with the labella more often bluntly rounded apically and, when slightly pointed, the labella is less elongate; thorax less convex and less markedly humped . . . . . 38.

38. (39) Pubescence above, especially on occiput and thorax in both sexes, comparatively short and with a slight shorn-off appearance, more so than in any other species in this series, with the hair on antennal joint 1 above distinctly shorter and with a few black bristles across hind margins of last few ventral segments; proboscis comparatively stoutish and rather long, quite 3 mm. long, somewhat coarsely shagreened, owing to conspicuous visible spinules, with the labella markedly long, well developed and spinulate; hypopygium of ♂ (text-fig. 190) with comparatively longish hairs on basal parts and with the aedeagus comparatively long and conspicuously curved upwards . ♂ ♀ *phileremus* n. sp. (p. 659).

39. (38) Pubescence on body above distinctly longer and more puff-like in both sexes, not with a cropped appearance on thorax and that on occiput long, the hair on antennal joint 1 above distinctly, or much, longer and conspicuous and without any black bristles on last few ventral segments; proboscis usually shorter than 3 mm., less stout, the spinules not visible or at least much less developed and with the labella shorter and less strongly developed; hypopygium of known ♂♂ with the aedeagus less strongly developed and less strongly curved upwards . . . 40.

40. (45) Squamae with pallid or yellowish margins; proboscis slightly shorter, about 1–2 mm. long, with the spinules not or scarcely visible; knobs

of halteres entirely ivory whitish, pale yellowish to lemon yellowish; pubescence, on the whole, slightly shorter, less dense and puff-like on occiput and thorax anteriorly and without a distinct undergrowth of fine, dark or blackish hairs visible among the long hairs on thorax and abdomen . . . . . 41.

41. (42) Pubescence on body below, on the whole, more distinctly cretaceous or chalky white and the erect hairs on abdomen, especially laterally, tending to be whiter, with the scaling on legs tending to be whiter; hind femora with only about 1–2 spines in apical outer aspect below and with 2 black-tipped pallid spurs on middle tibiae apically below; wings with the veins darker, more brownish or blackish brown and the knobs of halteres more pale lemon yellowish; eyes in ♂♂ in actual contact above for a distance a little more than 2 times length of ocellar tubercle; hypopygium of ♂ (text-fig. 183) with the inner plate bounding base of beaked joints not prominently or angularly produced apically and without any distinct medial, ventral, aedeagal process projecting apically

♂ ♀ *kalaharicus* var. *venustus* Hesse (p. 645).

42. (41) Pubescence on body below duller whitish, that on abdomen and even on thorax tending to be more straw-coloured yellowish, with the scaling on legs duller whitish, becoming faintly straw-coloured yellowish towards apices of femora and tibiae; hind femora with about 3–4 spines below, with apparently only 1 black-tipped pallid spur apically on middle tibiae; wings with distinctly paler and more yellowish veins and with the knobs of halteres more pale yellowish or ivory whitish; eyes in known ♂♂ in actual contact for a distance slightly less than 2 times length of tubercle; hypopygium of known ♂♂ (text-figs. 191–195) with the inner plate at base of beaked joints produced and angularly prominent apically and usually with a more distinct ventral, aedeagal process . . 43.

43. (44) Slightly smaller form, about 6 mm. long, with a wing-length of about 5 mm.; proboscis slightly shorter, only about 1½ mm. long and more slender; bristly hairs on ocellar tubercle and sides of frons in ♀♀ dark brownish, those on antennae above and some on sides of upper parts of face in ♂♂ as well as a few on antennae below in ♂♂ also blackish brown; legs apparently more slender . . ♂ ♀ *irvingi* n. sp. (p. 661).

44. (43) Slightly larger form, about 7 mm. long, with a wing-length of about 6½ mm.; proboscis slightly stouter and longer, about 2 mm. long; bristly hairs on ocellar tubercle and frons predominantly straw-coloured yellowish in ♀; legs distinctly stouter

♀ var. of *irvingi* n. sp. (p. 662).

45. (40) Squamae with distinctly dark or blackish brown to black margins; proboscis slightly longer, 2–3 mm. long, with the spinules more distinctly and more coarsely visible; knobs of halteres tending to be darkened or even blackened above; pubescence denser, longer and more puff-like on occiput and front part of body and usually with a distinctly visible undergrowth of fine, shortish, black or dark intermixed hairs on disc of thorax and abdomen above, more visible in certain positions, especially in ♀♀ . . . . . 46.

46. (47) Bristly hairs on ocellar tubercle and sides of frons basally predominantly straw-coloured whitish or yellowish in ♀♀, without any or with only a

very few dark ones on tubercle and with the depressed pubescence on frons in ♀♀ silvery whitish; pubescence on disc of thorax, scutellum and abdomen above distinctly more straw-coloured yellowish in both sexes ♂ ♀ *turneri* n. sp. (p. 662).

47. (46) Bristly hairs on ocellar tubercle and sides of frons basally black and conspicuous and with the depressed pubescence on frons sericeous yellow in ♀; pubescence on disc of thorax, scutellum and abdomen above apparently more whitish and less tinted straw-coloured yellowish ♀ *turneri* var. *melalophus* n. (p. 664).

48. (23) Proboscis distinctly longer, usually more slender, at least as long as head and thorax together, sometimes longer or also at least as long as abdomen 49.

49. (50) Proboscis very long and comparatively slender, about 5 mm. long; pubescence longer and that on occiput and on face longer and more puff-like, much longer than antennal joints 1 and 2 combined, with the hair on disc of thorax and on abdomen above more distinctly tinted straw-coloured yellowish, with the black transverse bristles on abdomen more conspicuous and well developed; squamae with dark or blackish margins; larger species, more bulky, about 9–10 mm. long ♀ *subtropicalis* n. sp. (p. 664). (Syn. = *cylindricus* Bezz. in part.)

50. (49) Proboscis shorter, about 3–4 mm. long; pubescence shorter or even very short, that on face and body in front finer, denser and shorter, scarcely as long as, or not much longer than, antennal joints 1 and 2 combined, with the hair on disc of thorax and abdomen, like rest of hair above, entirely sericeous whitish or silvery whitish and, if tinted slightly yellowish towards apex of abdomen, it is very pale straw-coloured and less yellowish, the depressed pubescence being less yellowish, with the black transverse bristles on abdomen above less conspicuous and more often only evident towards apex; squamae with very pale yellowish margins; slightly smaller and less bulky species, about 4½–7 mm. long . . . 51.

51. (52) Palps with joint 2 markedly short or shorter and not longer than antennal joint 2; proboscis distinctly and more or less coarsely spinulated, with the labella comparatively long and broad, its apical part bluntly rounded; pubescence on occiput, like that on thorax in front, very dense and comparatively short, not much longer than antennal joints 1 and 2 combined; eyes in ♂ in actual contact for a distance about equal to or subequal to length of tubercle and then subcontiguous from there for an equal distance; wings with the discoidal cell tending to be more truncate apically, the apical cross vein being long . ♂ *nivalis* n. sp. (p. 666).

52. (51) Palps with joint 2 distinctly longer and often very much longer than antennal joint 2; proboscis without any conspicuously visible spinules, with the labella, though also long, distinctly narrower or even much narrower, the lobes more sharply pointed apically; pubescence on occiput and thorax in front less dense, distinctly more puff-like and longer than antennal joints 1 and 2 combined; eyes in ♂♂ in actual contact for a distance distinctly longer, about 2 times as long as tubercle, the front half being in actual contact like the basal half; wings with the discoidal cell tending to be more acute apically, the apical vein being shorter . 53.

53. (54) Legs entirely dark or black, even the tibiae scarcely or not paler than the femora; pubescence with the black hairs on antennal joint 1 above longer and more shaggy, those laterally distinctly longer and more conspicuous, with the hair on abdomen above and below distinctly denser; proboscis slightly more slender, more markedly so in apical half; hind femora with about 3–5 spines below; hypopygium (text-fig. 194) with the basal parts more elongate, with the aedeagus shorter and only very slightly curved upwards and with a well-developed medial, ventral, aedeagal process . . . ♂ *tenuirostris* n. sp. (p. 667).

54. (53) Legs with the tibiae distinctly paler than the femora, more reddish or dark reddish brown, and the hind ones markedly paler and more pale brownish, with the bases of tarsi also paler and reddish brown; pubescence with the black bristly hairs on antennal joint 1 above distinctly much shorter and more pubescent, with the hair on abdomen above and below apparently sparser; proboscis, on the whole, slightly stouter; hind femora with apparently only 2 spines apically below; hypopygium (text-fig. 195) with the basal parts broader in basal two-thirds, with the aedeagus longer and more distinctly curved upwards in apical part and without any ventral aedeagal process . ♂ ♀ *chioleucus* n. sp. (p. 668).

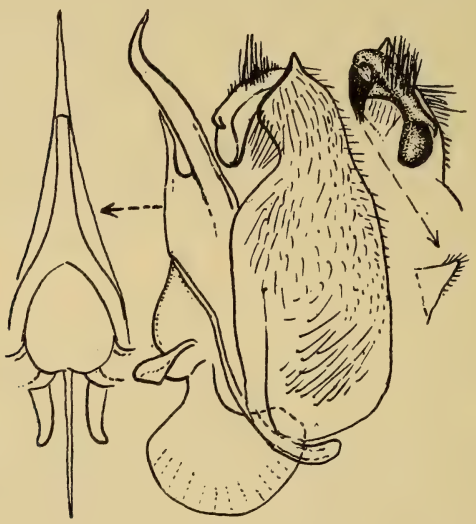
G. cygnus (Big.).

(P. 368, Ann. Soc. Ent. Fr., lxi, 1892; Bezzi, p. 90, Ann. S. Afr. Mus., vol. xviii, Pl. II, fig. 17, 1921.)

There is some doubt as to the specific identity of the few specimens from the Western Province which Bezzi labelled as *cygnus*. Bigot himself labelled one ♂ as "*Bombylius niveus* Macq." (p. 102, Dipt. Exot. ii, 1840). As stated by Bezzi, *niveus* is precluded on account of the position of the discal cross vein and also by its long proboscis, which, according to the measurement given, is very nearly half as long as the body-length given. The other characters, given by Macquart in his very short and vague description, however, raise a suspicion that his *Bombylius niveus* may prove to be a white-haired *Gonarthrus* with a long proboscis, such as *chioneus* Bezz. or *subtropicalis* n. sp. dealt with lower down. Bezzi, not having had any other white-haired species except this one and *chioneus* before him, referred these specimens in the South African Museum and probably others in the British Museum to *cygnus* (Big.). It is, however, unlikely that Bigot would refer a species to *niveus* Macq. and then proceed to describe the same species as *cygnus*. From the inadequate description of *cygnus* by Bigot, it is also very difficult to state whether he was dealing with the same species which Bezzi referred to *cygnus*. In this paper at least 13 white-haired species are dealt with, of which 6 are found in the Cape Province, to every one of which, with the

exception of *chioneus* (with long proboscis), Bigot's description is more or less applicable. In addition there are some other species which are almost white when viewed in certain lights. In view of the fact that *cygnus* was described from "Cap de Bonne-Espérance" and that it is "*dense albido sericeo villosus,*" I am also retaining these Cape specimens in *cygnus* to which Bezzi referred them.

The specimens before me are easily recognised by the dense and entirely sericeous or silvery white pubescence on body, the absence



TEXT-FIG. 174.—Ventral view of aedeagus, side view of hypopygium, and dorsal view of beaked apical joint of ♂ *Gonarthrus cygnus* (Big.).

of dark or blackish hairs on first antennal joints above in ♂♂, the blackish brown tuft of hairs on ocellar tubercle in ♂♂, the presence of yellowish or pale brownish bristly hairs on tubercle and frons in ♀♀, the entire absence of conspicuous or distinct black bristles towards apex of abdomen in both sexes (some of these may, however, be yellowish or brownish or with darkish bases in some specimens), the presence of very short erect blackish brown or blackish hairs on the abdomen (hidden by the long silvery pubescence), the entirely dark knobs of the halteres or knobs darkened above and below in both sexes, the very short and shining proboscis of which the surface is faintly striolate and the comparatively long and broad labella, more than a third as long as rest of proboscis and with only 1 black-tipped, pallid, apical spur on middle tibiae below. The tibiae are, however, not entirely "*pallide fulvis*" as stated by Bigot, only the

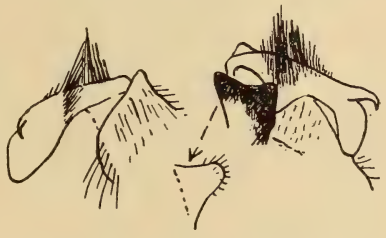
hind ones being distinctly paler, the others being scarcely paler than the dark femora. *Hypopygium* of ♂ (text-fig. 174, lateral view, ventral view of aedeagus and dorso-lateral view of beaked apical joint) with the outer apical angle of basal parts sharply prominent, and plate bounding base of beaked apical joint on inner side acutely angular apically (*see* figure); beaked apical joints as shown in figure, with the apical lobe more or less rounded and the dorsum of joints with a clump or tuft of erect stiff spine-like bristles; aedeagus with the medial, flattened, ventral process at base distinct.

Locality.—Western Province. (Transvaal, British and South African Museums.)

17 ♂♂ 28 ♀♀ *G. namaënsis* n. sp.

(Syn. = *cygnus* Bezz. in part nec Bigot.)

This species is practically indistinguishable superficially from what I take to represent *cygnus* Big. It has the same dense silvery whitish pubescence on body, but differs in the following characters:—Bristly hairs on ocellar tubercle in ♂♂ black, not dark blackish brown or dark brownish and the hair on antennal joints above in ♂♂ dark brownish or blackish and not whitish, those on tubercle and frons in ♀♀ usually entirely white or only very feebly tinted yellowish at their bases, the abdomen usually with a few or some yellowish brown, transverse bristles towards apex in ♂♂, the apices of which are, however, extensively whitish and more often there is also a distinct yellowish or even orange brownish tint at the bases of the other abdominal hairs in ♂♂ and those on abdomen in some ♀♀ often distinctly yellowish; wings with a tendency for the veins to be slightly darker, more blackish brown; halteres with blackish knobs in ♂♂ and, in many specimens, entirely pallid in ♀♀; middle tibiae with 2 long, black-tipped, pallid, apical spurs below; eyes in ♂♂ usually in actual contact for a distance at least equal to length of ocellar tubercle (scarcely or even distinctly shorter than tubercle in *cygnus*); antennal joint 3 tending to be more or less thickened before middle, broadest nearer base, thus more distinctly club-shaped and with a slightly



Text-fig. 175.—Left beaked apical joint of hypopygium (in lateral and oblique-dorsal views) of ♂ *Gonarthrus namaënsis* n. sp.

longer, slender, apical part; proboscis apparently slightly longer, about 2–3 mm., not shining, duller and appearing subshagreened owing to comparatively coarse spinules, which are conspicuously visible and denser anteriorly and on labella, the latter also being comparatively shorter and often much less than a third as long as rest of proboscis; legs with the tibiae as in *cygnus*, often almost pale reddish brown, but more often dark, the hind femora with about 4–11 spines in apical outer half below. *Hypopygium* of ♂ very similar to that of *cygnus* (cf. text-fig. 174) but with sparser and much shorter hairs on dorsum of basal parts; beaked apical joints (text-fig. 175, lateral and dorso-lateral views) with the apical lobe, however, narrower and distinctly more pointed apically than in *cygnus*; outer apical angle of basal parts distinctly less pointed and prominent; plate bounding base of beaked apical joint on inner side (*see* figure) more rounded apically; basal strut smaller and narrower.

Types in the South African Museum.

Length of body: about 7–10½ mm.

Length of wing: about 6–8½ mm.

Locality.—Namaqualand: Garies Distr.; Klip Vlei (Mus. Exp., Nov. 1931) (Types); Bowesdorp (Mus. Exp., Nov. 1931); O'okiep (Lightfoot, Oct. 1890) (labelled as *cygnus* Big. by Bezzi); Van Rhyn's Pass (v. Son, 4–5/11/33); Nieuwoudtville (Cockerell, 18–22/11/31) (Imperial Institute). S. Karoo: Matjiesfontein (Turner, 6–30/10/28) (British Museum). W. Cape Province: Clanwilliam (Brauns, 9/28) (Transvaal Museum).

2 ♂♂ *G. culiciformis* Hesse.

(P. 168, Ann. Trans. Mus., vol. xvii, 1936.)

Body black; abdomen with the hind margins of segments laterally dull greyish white and body below with greyish white bloom; tibiae and tarsi very dark reddish brown, the hind ones being very slightly paler, the middle ones with 2 black-tipped, pallid, apical spurs below; bristly hairs on ocellar tubercle and row of separated fine ones along posterior margins of eyes very dark blackish brown; hair on antennal joints 1 and 2 above black, the pubescence on body above and below entirely frosty white, comparatively sparse above and without any transverse black bristles on abdomen above; wings vitreous hyaline, iridescent, with the costal cell and base subopaquely whitish, the veins yellowish brown to brownish and the opaquely whitish squamae with pale yellowish margins; halteres pallid, the bases more brownish

and the knobs dark blackish brown above and only slightly darkened below. *Head* with the mystax comparatively sparse; antennae with joint 3 comparatively broad, broadest just before middle, narrowed at extreme base and only very gradually narrowed apically, the apical part not being very slender; proboscis about 1–1½ mm. long, without any visible spinules below. *Legs* without any spines on middle femora below and with apparently only 1 spine towards apex on outer aspect on hind ones below. *Hypopygium* (text-fig. 176, lateral and dorso-lateral view of beaked joint) with the dorsum of basal parts very sparsely and shortly hairy; aedeagus with a short, medial, ventral, aedeagal process; plate on inner side at base of beaked joint angularly pointed apically.



Text-fig. 176.—Side view of hypopygium and oblique-dorsal view of apical joint of ♂ *Gonarthrus culiciformis* Hesse.

Type in the Transvaal Museum.

Length of body: about 4–5 mm.

Length of wing: about 4 mm.

Locality.—Bechuanaland: Kaotwe (V.-L. Kal. Exp., 8–12/4/30).

This small species is recognised by its mosquito or gnat-like shape and tapering abdomen, the comparatively sparse and frosty white pubescence, etc.

1 ♂ *G. monticolus* n. sp.

Black; legs black, only the hind tibiae more dark reddish brown; pubescence predominantly whitish, that on occiput, disc of thorax and abdomen above (as far as these are not denuded) with a faint yellowish or straw-coloured yellowish tint when viewed from side, that in mystax and body below entirely white, that on occiput with comparatively conspicuous black or dark hairs just behind margins of eyes, with the bristly hairs on ocellar tubercle and on antennae above blackish; wings vitreous hyaline, the base subopaquely yellowish and the veins dark brown, becoming yellowish at base and the opaquely whitish squamae with dark blackish brown margins;

halteres yellowish, with very pale yellowish knobs, only very feebly darkened above. *Head* with the coarse facets on upper half of eyes distinctly demarcated from fine ones in lower half; antennal joint 3 slender, rod-shaped; proboscis about 2½ mm. long. *Abdomen* with some straw-coloured, transverse bristles towards apex and without any black bristles. *Legs* with 1 spine near apex on middle femora below and with about 3 or 4 widely separated spines on outer lower surface on hind ones. *Hypopygium* (text-fig. 177, lateral view and dorso-lateral view of beaked joint) with the dorsum of basal parts, especially neck region, covered with comparatively longish pubescence and with plate bounding base of beaked joint on inner side produced lobe-like apically; aedeagus with a prominent, ventral, aedeagal process.



TEXT-FIG. 177.—Side view of hypopygium and oblique-dorsal view of beaked apical joint of ♂ *Gonarthrus monticolus* n. sp.

Type in the South African Museum.
Length of body: about 7½ mm.
Length of wing: about 6 mm.

Locality.—S. Cape Province: Swellendam; Tradouw Pass (Mus. Exp., Nov. 1925).

This somewhat denuded ♂ may be distinguished from *chioneus* Bezz. by the much shorter proboscis and entirely white mystax; from *cygnus* (Big.) by the more slender proboscis, longer distance of actual contact of the eyes and much paler knobs of the halteres.

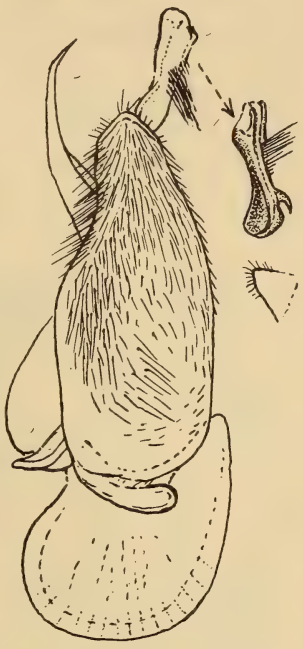
G. xanthinus Bezz.

(P. 89, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species is easily recognised by the entirely yellow or golden yellow pubescence, which is scarcely paler on pleural regions, the entire absence of black transverse bristles on abdomen, the presence of only slightly deeper yellowish bristly hairs on ocellar tubercle, the visibly spinulated proboscis, which is also not very long and the pale yellowish white knobs of the halteres. *Hypopygium* of ♂

(text-fig. 178, lateral view and dorso-lateral view of beaked joint) with comparatively long hairs on dorsum of basal parts, especially in neck region, and with plate (*see* outline figure) on inner side of base of beaked joint angularly prominent apically; aedeagus without a distinct, medial, ventral, aedeagal process; beaked apical joints slightly depressed or flattened on inner side; basal strut well developed and conspicuously prominent basally.

The ♀ is still unknown, the supposed ♀ type from Potchefstroom, described by Bezzi, being the ♀ of an entirely different and new species which I have described as *citrinus* in this paper. It differs from the ♂ type of *xanthinus* in having the hair on face and genae white, contrasting with the pale lemon yellow pubescence on rest of body above, in having much paler hair on the pleurae and also in the presence of transverse rows of distinct black bristles across hind margins of abdominal segments above.



Text-fig. 178. — Side view of hypopygium and views of beaked apical joint of ♂ *Gonarthrus xanthinus* Bezz.

Locality.—N. Cape Province and O.F.S. (Transvaal and South African Museums.)

8 ♂♂ 3 ♀♀ *G. chloroxanthus* n. sp.

Black; tibiae conspicuously pale yellowish or luteous and the middle ones with 2 black-tipped, pallid spurs apically below, with the tarsi darker and more dark brownish; pubescence, when viewed from directly above, pale dull greyish, silvery whitish to greenish yellowish, paler in ♀♀, and when viewed from side that on occiput above with a distinct yellowish tint in some ♂♂, more whitish or pale straw-coloured in ♀♀; that on disc of thorax, scutellum and abdomen above with a faint, but distinct, creamy yellowish to yellowish tint, more straw-coloured to slightly yellowish in ♀♀ (as far as can be seen in denuded specimens), the hair on antennae below

and on face and body below being sericeous white in both sexes, with the hair in front of wings and across occiput and front part of thorax, in certain lights, also white, the bristly hairs on ocellar tubercle and on antennae above in ♂♂ dark blackish brown or black, those on tubercle and frons in ♀♀ pale straw-coloured, the pubescence on abdomen without any transverse rows of black or blackish bristles, these being entirely whitish, straw-coloured yellowish to slightly yellowish and more or less like rest of hair; wings vitreous hyaline, with the costal cell and base subopaquely whitish to pale yellowish white, with the veins dark brownish, becoming yellowish towards base, with white hair on yellowish margined squamae; halteres yellowish, becoming more brownish yellow basally, with very pale yellowish white knobs in both sexes. *Head* with the coarsely faceted upper half of eyes in ♂♂ well demarcated from finely faceted lower half; interocular space in ♀♀ less than 3 times as broad as ocellar tubercle on vertex; antennal joint 3 comparatively slender, subrod-like, only gradually tapering towards apex, especially in ♂♂; proboscis about 2–2½ mm. long, without any visible spinules in basal part; palps with the basal half of apical joint luteous. *Legs* with 1 spine in apical part of middle femora below and 2–3 in apical outer aspect of hind ones below. *Hypopygium* of ♂ (text-fig. 179, lateral view, dorso-lateral and frontal views of beaked joint) with the beaked apical joints distinctly, though slightly, hollowed out on inner side; aedeagus gradually curved upwards, only with a basal ridge below and no distinct projecting, medial process; plate bounding base of beaked joint on inner side angular apically.



TEXT-FIG. 179.—Side view of hypopygium and other views of beaked apical joint of ♂ *Gonarthrus chloroxanthus* n. sp.

Types in the South African Museum.

Length of body: about 6–9 mm.

Length of wing: about 5–7 mm.

Locality.—W. Cape Province: Olifant's River Valley between

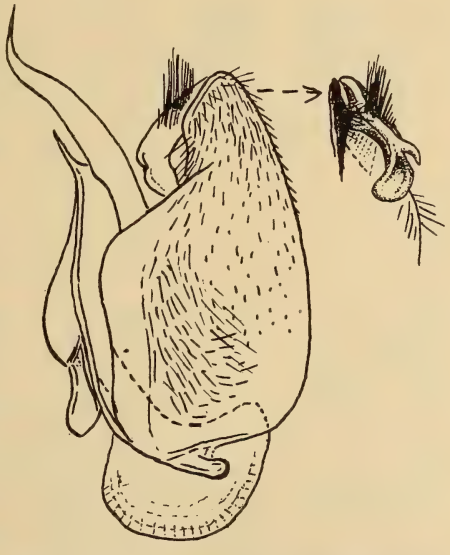
Clanwilliam and Citrusdal (Mus. Exp., Oct.–Nov. 1931) (Types). Namaqualand: Nieuwoudtville (Ogilvie, 18–22/11/31) (Imperial Institute). Central Karoo: Murraysburg (Mus. Exp., March 1930). S. Karoo: Ceres (Turner, Nov.–Dec. 1920); Worcester (Turner, Dec. 1933) (British Museum).

Easily recognised, especially in the ♂, by the dull greyish or greenish yellow pubescence when viewed from directly above and by the very pale luteous tibiae. From other species, such as *natalensis* n. sp. and *kalaharicus* Hesse with luteous tibiae, it differs in not having transverse rows of black bristles on abdomen above.

G. chioneus Bezz.

(P. 91, Ann. S. Afr. Mus., vol. xviii, 1921.)

Two named specimens, a ♂ and a ♀, from Willowmore, in the collection of the late Dr. Brauns, agree in every respect with Bezzi's description. The species is easily recognised by the long and slender proboscis, white pubescence, the darkened hair on antennae below and on side of face in ♂, which is blackish along front margins of eyes and more yellowish or greyish yellow towards rims of buccal cavity, by the yellowish tint at bases of hairs on occiput, the absence of black bristles on abdomen and the presence of about 4–7 spines on hind femora below.



Text-fig. 180.—Side view of hypopygium and oblique-dorsal view of beaked apical joint of ♂ *Gonarthrus chioneus* Bezz.

The ♀, which appears not to have been described, has the hair on occiput, antennae and in mystax entirely sericeous white, only some of the bristly ones on ocellar tubercle and frons being slightly more yellowish or greyish yellow in certain lights; interocular space on vertex a little less than 3 times as broad as tubercle; halteres with

entirely pale yellowish white to whitish knobs; transverse rows of bristles on abdomen, especially towards apex, yellowish as in ♂.

Hypopygium of ♂ (text-fig. 180, lateral view and dorso-lateral view of beaked joint) with the basal parts broad and the neck region well marked off, with some pubescent hairs on dorsum, more conspicuous anteriorly, with the inner plate at base of beaked apical joint sharply angular apically; beaked apical joints somewhat laterally compressed; aedeagus with a distinct medial, ventral, aedeagal process at base below.

Locality.—Central and Southern Karoo. (In the Transvaal and South African Museums.)

3 ♂♂ *G. willowmorensis* n. sp.

Black; legs and, to a certain extent, the antennae chocolate or dark coffee brownish; pubescence white above and below, comparatively sparse on pleurae and on abdomen, without any dark or black transverse rows of bristles on abdomen, that on occiput with dense and long blackish brown hairs in front and the others also with a distinct brownish tint at their bases when viewed from side, the bristly hairs on ocellar tubercle dark blackish brown, the hairs on antennae above and below, on face and genae greyish or blackish brown when viewed from side, those on face along front margins of eyes being darker and blackish and those nearer buccal rim paler, the beard below, however, whitish; wings vitreous hyaline, iridescent, with the veins yellowish and the margins of the opaquely whitish squamae slightly brownish; halteres yellowish, with the knobs more darkened above or dark blackish brown above. *Head* with the coarser facets in eyes above passing almost imperceptibly into the finer ones below; antennal joint 3 broadest near base, very gradually narrowed apically, the apical part not being very slender; mystax on face comparatively sparse; proboscis slender, about 2½ mm. long, without any visible spinules below; palps with the apical joints comparatively short and not



TEXT-FIG. 181.—Side view of hypopygium of ♂ *Gonarthrus willowmorensis* n. sp.

markedly club-shaped or with a long and slender base. *Legs* with 1 spine near apex below on middle femora and with about 2–3 spines below on outer apical aspect of hind ones; middle tibiae with 2 dark-tipped, pallid, apical spurs below. *Hypopygium* (text-fig. 181, lateral view and dorso-lateral view of beaked joint) with the basal parts somewhat elongate and the neck region not well marked off, with longish hairs apparently only in neck region and with the plate bounding base of beaked joint on inner side angularly prominent apically; beaked apical joints markedly laterally compressed; aedeagus with a short, but distinct medial, ventral, aedeagal process at base.

Type in the Transvaal Museum.

Length of body: about 4–5 mm.

Length of wing: about 4–5 mm.

Locality.—Little Karoo: Willowmore (Brauns, 1/4/1902).

This small and delicate species can be distinguished from *culiciformis* Hesse by its much longer proboscis, much darker and more brownish hair on occiput behind margins of eyes, on antennae and in mystax and by the dark brownish or chocolate brown coloured legs. From a small specimen of *chioneus* Bezz. it differs in having distinctly longer and denser dark hairs on the occiput in front, much sparser mystax and with comparatively fewer pale hairs in mystax and with fewer spines on hind femora below.

3 ♂♂ 10 ♀♀ *G. kalaharicus* Hesse.

(P. 168, Ann. Trans. Mus., vol. xvii, 1936.)

Black; tibiae luteous, yellowish to pale yellowish brown, the last 2 or 3 tarsal joints being black; pubescence, when viewed from above, pale brassy yellowish especially on abdomen above and, when viewed from side, that on front part of occiput, disc of thorax, scutellum and abdomen with a distinct pale yellowish to brassy yellowish tint and more so on scutellum and abdomen; hair on body below and base of venter cretaceous white; depressed pubescence on base of thorax, scutellum and on abdomen above, in ♀ especially, very dense, pale brassy yellow and with a conspicuous brassy or golden sheen, thus giving the abdomen an added yellow appearance; bristly hairs on ocellar tubercle and along hind margins of eyes and on antennae above in ♂ blackish or black, those on tubercle, frons and on antennae above in ♀ yellowish to deep yellowish and hairs towards apex of antennal joint 1 below in both sexes tinted yellowish; mystax and

beard below sericeous white like rest of hair below; transverse rows of bristles across hind margins of abdominal segments 2–6 in ♀ and 2–7 in ♂ black, with, however, only a few on 2 and 3, more or less confined to disc, black, those on 5–7 being denser, longer, more conspicuous and also extending down laterally on extreme sides; last abdominal segment with predominantly straw-coloured yellowish to yellowish hair; venter without any black bristles on penultimate segment and one before it; spiny bristles on genital segment of ♀ yellow; wings vitreous hyaline, with the extreme base and costal cell subopaquely pale yellowish white, with the veins brownish to dark brownish, becoming yellow at base, with the squamal fringe whitish and squamal margin yellowish; halteres yellowish, with very pale lemon yellow to almost whitish knobs in both sexes. *Head* with the coarser facets on more than the upper half of eyes in ♂ more or less well demarcated from finer facets on less than lower half; interocular space on vertex in ♀ very nearly 3 times as broad as ocellar tubercle; antennae with joint 3 very gradually tapering from broadest part near base, with the terminal style minute; proboscis about 2–2¾ mm. long, without any conspicuously visible spinules. *Legs* with dense whitish scaling on femora in ♂, but becoming slightly yellowish apically on the outer side in ♀; middle femora with 1 spine apically below; hind ones with about 2–4 spines (more often only 2) towards apex; middle tibiae with 2 black-tipped, pallid spurs below apically. *Hypopygium* of ♂ (text-fig. 182, lateral and dorso-lateral view of beaked joint) with pubescent hairs on basal parts, especially in neck region, with the plate at base of beaked joints on inner side rounded and not produced apically; aedeagus gradually curved upwards and without any medial, ventral process below.



Text-fig. 182.—Side view of hypopygium of ♂ *Gonarthrus kalaharicus* Hesse.

Holotype in the Transvaal Museum, allotype in the South African Museum.

Length of body: about 4½–9 mm.

Length of wing: about 4½–7½ mm.

Locality.—Bechuanaland: Kuke Pan (V.-L. Kal. Exp., 21–30/3/30)

(Holotype); Kaotwe (V.-L. Kal. Exp., 8–12/4/30) (Allotype); Damara Pan (V.-L. Kal. Exp., 15–21/4/30).

This species is easily recognised by its luteous or pale yellowish tibiae and pale brassy yellowish appearance of the hair on abdomen above, due to dense depressed brassy pubescence, especially in ♀ and also by the cretaceous white hairs and bloom on pectus and pleurae. From *leucophys* it differs in having pale yellowish tibiae, paler yellow and less golden pubescence above, less extensively yellowish hairs on antennae below and with no black bristles towards apex of venter. The species seems to be variable in size and colour, some specimens being smaller and some with paler and more whitish pubescence. In the British Museum there is a single ♀-specimen, from Worcester (Turner, 17–31/8/1928), which does not differ structurally and even in colour from the Bechuanaland specimens and it cannot be referred to any other species but this. The species thus appears to be widely distributed in the drier parts of the Karoo and Bechuanaland.

1 ♂ 3 ♀♀ *G. kalaharicus* var. *venustus* Hesse.

(P. 169, Ann. Trans. Mus., vol. xvii, 1936.)

These specimens from Bechuanaland constitute a distinct variety, differing from the typical form in having distinctly paler and more



Text-fig. 183.—Side view of hypopygium of ♂ *G. kalaharicus* var. *venustus* Hesse.

whitish pubescence on body above, shorter proboscis, only about 1–1½ mm. long, and with much darker and even black tibiae in both

sexes. *Hypopygium* of ♂ (text-fig. 183) is like that of the typical form.

Holotype in the Transvaal Museum, allotype in the South African Museum.

Length of body: about 6–6½ mm.

Length of wing: about 5–5½ mm.

Locality.—Bechuanaland: Kaotwe (V.-L. Kal. Exp., 8–12/4/30).

4 ♂♂ 2 ♀♀ *G. versfeldi* n. sp.

Body black; tibiae yellowish brown, with the apices often darkened and with the tarsi dark or blackish; pubescence above and below predominantly or entirely silvery whitish as in *cygnus*, that on disc of thorax and on abdomen above only very faintly tinted straw-coloured yellowish in ♀♀ owing to some straw-coloured yellowish, depressed and erect shortish pubescence, with the bristly hairs on ocellar tubercle and sides of frons in ♀♀ entirely or predominantly black, with the black transverse bristles on abdomen above comparatively poorly developed, often only present towards apex above in ♂♂ and even in ♀♀ not extending down sides and also without any black bristles towards apex of venter, with an indication of an undergrowth of short, fine, erect, blackish hairs on disc of thorax and abdomen above in ♀♀ especially, with the macrochaetal bristles in front of wings yellowish; wings glassy hyaline, iridescent, with the costal cell, base and alula subopaquely whitish, the veins almost entirely black even to extreme base, with the opaquely whitish squamae margined with black and with their fringes silvery whitish; halteres dark, with very dark or blackish knobs, even in ♀. *Head* with the eyes in ♂♂ in actual contact above for a distance about 2, or a little less, times as long as tubercle, in ♀♀ separated by a space very nearly 3 times as broad as tubercle; antennae with joint 3 comparatively very slender and rod-like in ♂♂, slightly



Text-fig. 184.—Side view of hypopygium of ♂ *Gonarthrus versfeldi* n. sp.

thicker in ♀♀; proboscis about 2½–3 mm. long, the spinules not very dense, but visible, with the labella somewhat slender and elongate. *Legs* with about 1 spine on middle femora below and with about 3–4 in apical half on hind ones below; middle tibiae with 2 black-tipped yellowish spurs apically below. *Hypopygium* of ♂ (text-fig. 184) with the hairs on basal parts, especially in neck region, comparatively well developed, with the inner plate at base of beaked joints pointed, angular; aedeagus curved upwards and with a ventral process at base.

Types in the South African Museum.

Length of body: about 6–8½ mm.

Length of wing: about 5½–7½ mm.

Locality.—Southern Karoo: Ceres Distr.; Cold Bokkeveld (Versfeld, Oct. 1934) (Types). Gouph Karoo: Swartbergen; Meiring's Poort (Mus. Staff, Nov. 1935).

This species is separated from *natalensis* in the key. It differs from *chloroxanthus* n. sp. in having black bristles on abdomen, black-margined squamae, dark knobs to halteres and silvery white pubescence. From *turneri* n. sp. it differs in having yellowish tibiae, blackish wing-veins, predominantly silvery whitish pubescence above, etc.

6 ♂♂ 5 ♀♀ *G. natalensis* n. sp.

Black; tibiae pale reddish brown to very pale yellowish brown or luteous and the tarsi darker and more dark brownish, becoming dark and more blackish towards apices; pubescence on body above, when viewed from above, appearing dull greyish yellow to slightly greenish yellowish and, when viewed from side, that on occiput, front half of thorax and sides of abdomen basally sericeous whitish, with the hairs on front part of occiput, those on disc of thorax, scutellum and, to a certain extent, on abdomen above, especially towards apex, tinted straw-coloured yellowish to pale yellowish, becoming more apparent towards apex of abdomen, the hairs on antennae below, in mystax, on head below, on pectoral and pleural regions and basal half of venter as well as dense hair on femora in ♂♂ entirely white, those on head more shining sericeous white, the bristly hairs on ocellar tubercle in ♂♂, hairs on tubercle and patch-like tuft of pubescence and hairs on each side of frons in ♀♀, dense hairs on first antennal joints above in ♂♂, macrochaetae in front of wings in both sexes and the transverse rows of conspicuous bristles on abdominal segments

2–7 in ♂♂ and 2–6 in ♀♀ as well as some transverse bristles on last 2 or 3 ventral segments black (these bristles often almost absent or only represented by a few discal ones on segments 2 and 3 but always denser, longer, more conspicuous, often slightly pale-tipped and extending down sides of remaining segments), with the short, fine, erect hairs (hidden by the long erect pubescence) on disc of thorax, scutellum and abdomen above dark or blackish, but with some admixture of fine yellowish ones on abdomen in ♀♀; wings vitreous hyaline, with the extreme base and costal cell subopaquely pale yellowish white, with the veins pale yellowish brown, becoming more yellowish towards base and more brownish along costal and first longitudinal veins, with the squamal margins dark brownish and the fringe whitish, but tinted more straw-coloured yellowish in certain lights; halteres yellowish, with very pale yellowish white knobs. *Head* with the eyes in ♂♂ in actual contact above for a distance about equal to or subequal to length of ocellar tubercle and with the coarser facets in upper part imperceptibly passing into finer ones in lower part; interocular space on vertex in ♀♀ only about 2 times as broad as tubercle; antennae with joint 3 slender and elongate, only gradually narrowed from base, the apical half being scarcely narrowed, with the first terminal joint distinctly visible and as broad as apex of 3 and slightly longer than short and slender style; proboscis about 2–3 mm. long, without any visible spinules below. *Wings* with a tendency for third posterior cell to be constantly and distinctly broader basally than apically and also for discoidal cell to be more often acute apically than in other species in this series, with the vein separating first and second submarginal cells tending to be less sinuous and more straight especially at base. *Legs* with 1 spine apically below on middle femora and with about 3–6 spines on apical outer aspect of hind ones below; middle tibiae with 2 dark-tipped, pallid, apical spurs below. *Hypopygium* of ♂ (text-fig. 185, lateral view and dorso-lateral view of beaked joint) with the neck region of basal parts scarcely differentiated and with comparatively long and dense pubescent hairs on dorsum and with the plate bounding base of



Text-fig. 185.—Side view of hypopygium of ♂ *Gonarthrus natalensis* n. sp.

beaked apical joint on inner side (*see* figure) acutely produced or lobe-like apically; aedeagus with a distinct, pointed, medial, ventral, aedeagal process at base.

Holotype in the Durban Museum, allotype in the South African Museum, and some paratypes in the Transvaal and British Museums.

Length of body: about 6½–10 mm.

Length of wing: about 6–9 mm.

Locality.—Natal: Durban; Beach B. (Barker, 30/4/21. 2651) (Holotype); Umgeni (Barker, 5/4/19. 2388); Bluff (Barker, 21/5/21. 2675); Umbilo (Bevis, 28/4/15. 1565); Durban (Leigh, 14/5/08, 20/5/08 and 28/4/08): Durban Distr.; Mhogotwini River (Barker, 27/4/19. 2391) (Allotype). Pondoland: Port St. John (Turner, Apr. 5–30/1923) (British Museum).

This species resembles *kalaharicus* Hesse which also has luteous tibiae and from which it is separated by the characters given in the key. From *leucophys* (Big.) it is at once distinguished by the luteous tibiae and much paler pubescence above, much shorter distance of contact in eyes of ♂ and the coarsely faceted upper part of eyes in ♂ which is not so distinctly demarcated from lower part as in *leucophys*.

2 ♀♀ *G. labiosus* n. sp.

Black; pubescence pale greenish white, greyish or faintly greenish yellow when viewed from above but, when viewed from side, hair on occiput with a faint straw-coloured yellowish tint, that on disc of thorax, scutellum and, to a certain extent, on abdomen above with a distinct creamy or straw-coloured yellowish to faintly greenish yellow tint (the abdomen in certain lights with a distinct, but faint, greenish yellowish tint), with the hair on posterior part of occiput and front part of thorax being, however, more distinctly sericeous white with a faint greenish sheen, the depressed pubescence on frons faintly yellowish, the long bristly hairs on ocellar tubercle, hairs on side of frons, some intermixed ones on antennae above, macrochaetae in front of wings, intermixed erect hairs on disc and base of thorax, upright bristles on posterior half of scutellum, transverse rows of conspicuous bristles across hind margins of abdominal segments 2–6 above, pubescence on hind margins of genital segment and some transverse bristles on penultimate ventral segment and on one before it black, the fine erect ones on disc of thorax being, however, more dark purplish black, with the hair on antennae below and in mystax white and with a silky sheen, the pubescence on body below white,

having a greyish appearance owing to dull greyish bloom, the scaling on femora and tibiae white, only those towards apices of femora being slightly tinted yellowish, with the fine depressed pubescence, more or less transversely arranged on abdomen, pale sericeous yellowish, with the genital spines reddish golden and the pubescence more or less fulvous; wings faintly greyish hyaline, with the costal cell, base and alula subopaquely whitish, with the veins dark blackish brown even at base, with the squamae opaquely whitish and with blackish brown margins and whitish fringe which in certain lights shows a greenish tint; halteres yellowish, slightly more darkened basally and with very pale yellowish white knobs. *Head* with the interocular space on vertex about 2 times as broad as tubercle; antennae with joint 3 only a little longer than 1 and 2 combined, broadest in basal half just before middle, gradually narrowed basally and slightly more so apically, with the first terminal joint small, narrower than apex of 3, subequal in length to spine-like style; proboscis short, about 1½ mm. long, with the labella short and conspicuously broad, the apices comparatively rounded, slightly hollowed below, directed upwards (resembling two "cupped" hands held together), with the spinules dense and conspicuous on basal part of proboscis and very long, almost hair-like, on labella. *Legs* with 2 spines on middle femora below in apical part and with about 3–5 spines, often somewhat irregularly arranged, in apical half below on hind ones; middle tibiae with 2 dark-tipped, pallid spurs apically below.

Type in the Transvaal Museum.

Length of body: about 6–6½ mm.

Length of wing: about 5½–6 mm.

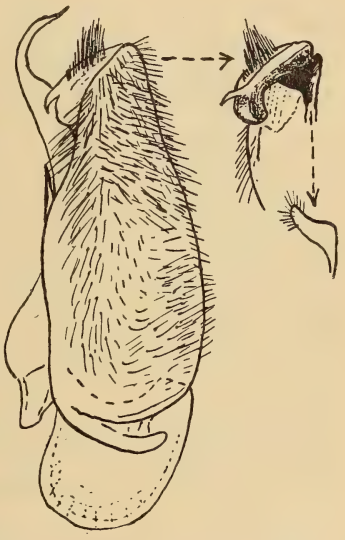
Locality.—N.E. Transvaal: Mariep's Mnt. (van Son, 4/1932).

This species is distinguished from ♀♀ of *leucophys* (Big.), which it resembles, in having distinctly paler, more pale greenish white to greenish yellow pubescence when viewed from above and distinctly much paler, almost whitish or very faint greenish white, not golden yellowish when viewed from side, the much shorter and distinctly more coarsely spinulated proboscis having a characteristic short and very broad labella, the more extensively white hair on pleurae, darker veins on wings, etc.

G. leucophys (Big.).

(P. 368, Ann. Soc. Ent. Fr., lxi, 1892; Bezzi, p. 89, Ann. S. Afr. Mus., vol. xviii, 1921, and p. 112, The Bombyliidae of the Ethiopian Region, 1924.)

This species can always be easily recognised by the entirely pale yellowish, deep yellowish to golden yellow pubescence above even when viewed from side and by the conspicuous transverse rows of black bristles on abdomen above, the fairly long proboscis, about $2\frac{1}{2}$–$3\frac{1}{2}$ mm., slightly greyish hyaline wings, deep yellowish pubescence on frons in ♀♀, etc. The species seems to be variable in the colour of the pubescence, ranging from pale lemon yellow to deep golden yellow. Apart from local differences, at least two colour-forms are common:—(*a*) A form with deep yellowish to golden yellowish pubescence above, with the hair on antennae below and often also extensively on upper parts of face distinctly tinted pale yellowish to deep yellowish in both sexes, usually with some dark or blackish hairs and bristles on disc and base of thorax and scutellum, especially in ♀♀, with the hair on pleurae more or less dull straw-coloured whitish and with the scaling on femora, at least on the outer apical parts and towards apices, tinted yellowish; (*b*) a more delicate form with slightly paler and more lemon yellowish pubescence above, with the hair on antennae below and in mystax entirely silky white, or scarcely visibly tinted yellowish, the mystax itself more sericeous whitish, usually without any conspicuous blackish hairs on thorax or scutellum above, with much paler and more whitish hair on pleurae and with the scaling on femora more extensively whitish and those on tibiae also much paler and less fulvous. There is, however, no sharp dividing line and individuals of one form may grade into that of the other. The species seems to occur only in thickly wooded country along the East Coast of Southern Africa. There are no specimens from the Western Province, Karoo or drier parts of South Africa



Text-fig. 186.—Side view of hypopygium of ♂ *Gonarthrus leucophys* (Big.).

before me, and Bigot's locality "Cap de Bonne-Espérance" is probably incorrect and his ♂ probably comes from the Eastern Province or Natal. The only specimens from the Cape Province are from East London, and they are markedly golden, even orange yellow.

The description of Bigot's "headless" *melanurus* (p. 369, Ann. Soc. Ent. Fr., lxi, 1892) as far as it goes seems also to be applicable to *leucophys*, excepting only his reference to the wings which are "*externe late et diffuse fusco tinctis.*" A pair of very denuded specimens, a ♂ and ♀ from Weenen in Natal (coll. Thomasset, 2840 ft., 3/24) also belongs to *leucophys*, although determined by Brunetti as *cylindricus* Bezz. The presence of some remaining yellowish hairs on the body above, the length of the proboscis (which is very much longer in *cylindricus*) as well as other characters leave no doubt that they belong to *leucophys*. The *hypopygium* of ♂-*leucophys* (text-fig. 186, lateral view and dorso-lateral view of beaked joint) with longish hairs on dorsum of basal parts, especially in neck region, with the plate bounding base of beaked apical joint on inner side markedly and acutely produced lobe-like apically; aedeagus with the apical part curved upwards sickle-like and with a distinct, medial, pointed, ventral, aedeagal process at base below; basal strut as shown in text-fig.

Locality.—Extreme East Cape Province, Natal, Zululand, Eastern Transvaal and S. Rhodesia. (In the Imperial Institute, Durban, Transvaal, British, Natal and South African Museums.)

13 ♂♂ 11 ♀♀ *G. citrinus* n. sp.

(Syn. = ♀ *xanthinus* Bezz.)

Black; pubescence lemon yellowish when viewed from above, gleaming silky lemon yellow from side, the fine depressed pubescence, especially on abdomen, brassy yellow, bristly hairs on ocellar tubercle and on antennal joint 1 above in ♂♂ dark blackish brown to black, those on tubercle and frons in ♀♀ either entirely yellowish or with only a few intermixed dark ones and hair on antennae above yellowish, the hair on antennae below in both sexes distinctly silky lemon yellowish, the mystax or hair on face and genae sericeous white, markedly contrasting with rest of pubescence, pubescence on head below, sides of head below and body below also pale lemon yellowish to greenish lemon yellowish, only slightly paler than above, with the macrochaetae in front of wings rarely black in some ♂♂ and some ♀♀ more often entirely yellowish, with the transverse rows of bristles

across hind margins of abdominal segments 2–6 in ♀♀ and 2–7 in ♂♂ black, but more or less confined to disc above, not extending down extreme sides where the bristles are usually yellowish, without any black bristles even on last few segments of venter, the pubescence on hind margins of last tergite and sternite in ♀♀ with predominantly yellowish hair, the scaling on legs predominantly very pale lemon yellowish to whitish; wings vitreous or glassy hyaline, with the costal cell subopaquely whitish and base subopaquely more yellowish, with the veins yellowish brown to brownish or dark brownish, becoming more yellowish at base, with the brown to dark brownish black-margined squamae opaquely whitish and with lemon yellowish fringes; halteres yellowish, with very pale yellowish knobs in both sexes. *Head* with the coarser facets on slightly more than upper half of eyes in ♂♂ well demarcated from finer ones on lower part; interocular space on vertex in ♀♀ a little more than 2 to nearly 3 times as broad as tubercle; antennae with joint 3 more or less rod-shaped in ♂♂ and only very slightly broader basally, with slightly less than apical half being narrowed in ♀♀, with the first terminal joint small and nodular, slightly narrower than apex of 3, subequal to or even slightly longer than spine-like style; proboscis about 2–3 mm., with the spinules minute but still visible towards apex and on labella. *Legs* with 1 spine near apex on middle femora below and with about 3–4 spines on outer apical aspect of hind ones below; middle tibiae with 2 black-tipped, pallid, apical spurs below. *Hypopygium* of ♂ (text-fig. 187) differs from that of *leucophys* (cf. text-fig. 186) practically only in having slightly shorter and less dense pubescence on basal parts and in that the integument is duller and more subshagreened, with the inner plate at base of beaked apical joint more narrowly and acutely produced apically (*see* figure).



Text-fig. 187. — Side view of hypopygium of ♂ *Gonarthrus citrinus* n. sp.

Holotype in the Transvaal Museum, allotype in the South African Museum.

Length of body: about 4–9 mm.

Length of wing: about $3\frac{1}{2}$–8 mm.

Locality.—Transvaal: Pretoria (17/2/15) (Holotype); Fountains near Pretoria (Roberts, 11/2/15) (Allotype); Quagga Poort near Pretoria (Lingnau, 18/1/25) (in the Deutsches Entomologisches Institut); Potchefstroom (Ayres) (labelled as *xanthinus* by Bezzi). Natal: National Park (Ogilvie, 3/32) (Imperial Institute). O.F.S.: Ficksburg (Mackie and Ogilvie, 3/32) (Imperial Institute).

This species is easily recognised by its gleaming lemon yellowish pubescence and contrasting sericeous white or silvery whitish mystax. From some of the colour-forms of *leucophys* it may be distinguished by the less extensive transverse black bristles on abdomen above which are practically confined to disc, absence of black bristles on last 2 or 3 ventral segments, distinctly more lemon yellow pubescence on body below, predominantly yellowish bristles on tubercle and frons in ♀♀, more contrasting and strikingly white mystax, predominantly yellowish hair on last segments in ♀♀, lemon yellowish squamal fringe, etc. A ♀-paratype was described by Bezzi as the ♀ of *xanthinus* (p. 89, Ann. S. Afr. Mus., vol. xviii) which it, however, cannot be seeing that *xanthinus* is entirely yellow-haired above and below, has a yellowish mystax, no black transverse rows of bristles on the abdomen and even shorter proboscis. The species is very variable in size.

1 ♀ *G. clavirostris* n. sp.

This unique ♀ is very close to *citrinus* but differs in certain respects, thus necessitating a separate species.

Black; legs as in *citrinus*, predominantly black, even the tibiae not less dark than femora; pubescence on body above predominantly pale lemon yellowish as in *citrinus* and with sericeous gleams, that on ocellar tubercle, frons, first antennal joints above and below, on face and genae and also on head below gleaming sericeous lemon yellowish and without any sericeous whitish hair on face and genae as in *citrinus*, that on pleurae and pectus scarcely paler than on body above and also distinctly yellowish as in *citrinus*, that on venter entirely pale sericeous lemon yellowish as on abdomen above and as in *citrinus*, with the hairs on femora also yellowish, with one macrochaetal bristle in front of wings dark or blackish, with the rest of bristles or bristly hairs on thorax and scutellum as in *citrinus* yellowish and with the transverse rows of bristles across hind margins of tergites 2–6 black and as in *citrinus*, not extending down sides of

abdomen, without any dark hairs or bristly hairs on last sternite or tergite and all bristles on venter yellowish; wings glassy hyaline, with the base and costal cell subopaquely yellowish whitish, with the veins dark brownish, darker than in *citrinus*, with the squamae subopaquely yellowish white, dark-bordered and with a yellowish fringe; halteres pale yellowish brown, with very pale yellowish knobs. *Head* with the interocular space quite 2 times as broad as ocellar tubercle; antennae with joint 1 also about 4 times as long as 2, with 3 slightly more rapidly narrowed apically from broadened base than in *citrinus*, the apical half more or less rod-like; proboscis about 2 mm. long, with the labella short and from side broad and oval, not elongate and pointed as in *citrinus*, the labella with sparse but longish bristle-like spinules. *Legs* with greyish white scaling, with 1 spine on middle femora in front near apex; hind femora with about 3 spines on outer side apically; middle tibiae with 2 pallid, but blackish-tipped, spurs apically below; tarsi with joint 2 of front ones with finer spines below than joint 1 and more like the modified joints 3–5, whereas in *citrinus* the spicules below 2 do not differ much from those below joint 1.

Type in the Natal Museum.

Length of body: about 8 mm.

Length of wing: about 7 mm.

Locality.—Natal: Maritzburg (Akerman, 1913).

This species is easily recognised by its pale sericeous lemon yellowish pubescence above, yellowish pubescence on face and genae and clubbed appearance of the proboscis, due to broad and oval labella. From *labiosus*, which has a similar type of labella, it is distinguished by the absence of dark hair on vertex, more yellowish pubescence, absence of black hairs on venter, etc.

1 ♂ *G. mimus* n. sp.

Black; pubescence dull yellow, with even a slight tint of greenish yellow in certain lights when viewed from above, that on occiput, disc of thorax, scutellum and abdomen above with a distinct sericeous yellow tint when viewed from side and that on thorax in front, however, paler and more creamy yellowish, even slightly whitish in front of wing-bases, the hair on antennae below, in mystax and head below whitish, that on pleural and pectoral regions and base of venter dull whitish, more straw-coloured whitish, becoming more creamy yellowish along upper parts of pleurae, the bristly hairs on

ocellar tubercle, fine erect hairs across occiput in front, those on anternal joint 1 above and transverse bristles across hind margins of abdominal segments 3–7 black (abdominal segment 2 in this unique specimen has no black bristles and 3 has only a few discally and only those on remaining segments are conspicuous and extending to sides), with the macrochaetae pallid and venter without any black bristles on last 2 or 3 segments, with the scaling on legs dull greyish white, only tinted slightly yellowish towards apices of femora and on tibiae; wings vitreous hyaline, with the costal cell and base subopaquely whitish, with the veins brown, becoming yellowish at base (the costal and first longitudinal veins at base, however, also brownish), with the yellowish-margined squamae opaquely whitish and with straw-coloured whitish fringes; halteres yellowish, with pale yellowish white knobs. *Head* with the coarser facets on slightly more than upper half of eyes well demarcated from finer ones on lower part; antennae with joint 3 only narrowed in slightly less than apical half, with the first terminal joint nodular, small, with joint 1 comparatively short, not quite 4 times as long as 2; proboscis about 2½ mm. long, with the spinules almost invisible. *Legs* with 1 spine on middle femora apically below and about 3 on apical outer aspect of hind ones below; middle tibiae with 2 dark-tipped, pallid, apical spurs below. *Hypopygium* (text-fig. 188, lateral view and dorso-lateral view of right beaked apical joint) with the integument of basal parts dull and subshagreened, pubescent in neck region and with the plate bounding base of beaked joint on inner side bluntly rounded apically; beaked apical joints much compressed and almost hollowed out on the inner side; aedeagus practically straight and the medial, ventral, aedeagal process at base stout and well developed.



Text-fig. 188.—Side view of hypopygium of ♂ *Gonarthrus mimus* n. sp.

Type in the South African Museum.

Length of body: about 8 mm.

Length of wing: about 7½ mm.

Locality.—E. Cape Province: Grahamstown; Resolution (Walton, Jan.–Apr. 1928).

This species is superficially almost indistinguishable from *leucophys* (Big.), from the ♂ of which, however, it differs in having a slightly sparser mystax and no yellow hair on antennae below, yellowish macrochaetae, shorter proboscis, less extensive and conspicuous transverse black bristles on abdomen above, which are more or less confined to disc and absent from segment 2 and even 3 and also without any black bristles on venter below towards apex. The hypopygium (cf. text-figs. 188 and 186) differs from that of *leucophys* in having the inner side of beaked apical joints distinctly more depressed and a practically straight aedeagus, etc.

4 ♀♀ *G. rhodesiënsis* n. sp.

Body black; legs, including tibiae and tarsi, black; hind margins of ventral segments narrowly pallid; pubescence predominantly sericeous white, only that on disc and base of thorax, scutellum and abdomen above tinted straw-coloured to pale sericeous yellowish, with the shortish pubescence above sericeous yellowish, with the bristly hairs on ocellar tubercle and on posterior part of sides of frons and some shortish intermixed ones on antennal joint 1 above, some intermixed bristly hairs on disc and base of thorax, some distinct and conspicuous bristles on scutellum posteriorly and those transversely on abdomen above (not extending down the sides) black, without any dark or black bristles on venter below and with those on abdomen above conspicuous, with the macrochaetae in front of wing-bases yellowish, with the hair on antennal joint 1 below, face and genae and entire body below frosty white; wings glassy hyaline, the costal cell, base and alula subopaquely whitish, the veins dark blackish brown, becoming paler and yellowish basally, with the squamae opaquely whitish, yellowish-margined and with white fringes; halteres yellowish and with whitish knobs. *Head* with the interocular space a little more than 2 times as broad as tubercle; antennal joint 1 nearly 5 times as long as joint 2, comparatively slender and rod-like; proboscis about 3 mm. long, not visibly spinulated and with the labella narrow, elongated and sharply pointed apically. *Thorax* comparatively convex or humped discally; scutellum with the apical part more or less brilliantly shining and not dull as in other species. *Legs* with 1 spine on outer apical aspect of middle femora and with about 3–5 spines in apical half below on hind ones; middle tibiae with 2 black-tipped yellowish spurs apically below.

Type in the Imperial Institute of Entomology.

Length of body: about 6–7 mm.

Length of wing: about 6–7 mm.

Locality.—S. Rhodesia: Matopo Hills (Mackie, 4/1932).

This species appears to differ from *leucophys* in being predominantly white-haired, with no yellowish hair on antennal joint 1 below and without black bristles on sides of abdomen and on venter, the yellowish macrochaetae and by the shining apical part of scutellum. From the ♀♀ of *vumbuënsis* it differs in the shining apical part of scutellum, the distinctly whiter pubescence above, yellowish-margined squamae, absence of black bristles on venter posteriorly and by its pale yellowish knobs to halteres.

2 ♂♂ 1 ♀ *G. vumbuënsis* n. sp.

Black; legs, including tibiae and tarsi, black; pubescence on body above with a straw-coloured yellowish tint when viewed from above, from side predominantly whitish to very pale straw-coloured in both sexes, that on disc of thorax, on scutellum and abdomen above distinctly more straw-coloured yellowish, especially on abdomen in ♀♀, with the bristly hairs on tubercle and sides of frons in ♀♀ black, with the hairs on antennal joint 1 above in ♂♂ entirely black, but with only a few shortish intermixed dark ones in ♀♀, with the hair on antennal joint 1 below, face and genae in both sexes entirely silvery whitish, with the macrochaetae in front of wings black, with an undergrowth of shortish, fine, black hairs on disc of thorax, scutellum and abdomen above, especially in ♀♀, with some long intermixed black bristly hairs or bristles on disc and base of thorax and on posterior part of scutellum in ♀♀ especially, with the transverse black bristles across hind margins of abdominal segments above well developed in both sexes, conspicuous and extending down sides of segments and also present ventrally towards apex, the last tergite and



TEXT-FIG. 189.—Side view of hypopygium of ♂ *Gonarthrus vumbuënsis* n. sp.

sternite also fringed with fine blackish hairs, with the hair on body below dull white, that on sides of venter especially, however, distinctly more straw-coloured yellowish in both sexes and with the fine depressed pubescence on body above slightly brassy yellowish; wings glassy hyaline, with the costal cell, base and alula subopaquely whitish, the veins very dark brown or blackish brown, becoming slightly paler towards base, with the squamae opaquely whitish, black-margined and with whitish fringes; halteres yellowish brown, with blackish brown or black knobs. *Head* with the eyes in actual contact above in ♂♂ for a distance at least 2 times as long as tubercle, the facets in upper half obliquely well marked off from finer ones in lower part, with the interocular space in ♀♀ nearly 3 times as broad as tubercle; antennae with joint 1 elongate and joint 3 slender and rod-like in ♂♂; proboscis about 2½–3 mm. long, the spinules distinctly visible; palps with the apical joints comparatively clavate or thickened apically. *Legs* with 1 or 2 spines apically below on middle femora and with about 3–4 spines in apical half below on hind ones; middle tibiae with 2 black-tipped yellowish spurs apically below. *Hypopygium* of ♂ (text-fig. 189) with the pubescence on basal parts comparatively very fine and sparse, only slightly longer and denser in neck region, with the inner plate at base of beaked apical joint acutely produced apically; beaked apical joints with the apical lobe somewhat truncate; aedeagus slender and curved upwards.

Types in the Imperial Institute of Entomology.

Length of body: about 7–9 mm.

Length of wing: about 7–8 mm.

Locality.—S. Rhodesia: Umtali; Vumbu Mts. (Mackie and Ogilvie, 5/1932).

This species differs from *leucophys*, which it very closely resembles, in having more whitish pubescence above, no yellowish hair on antennal joint 1 below, darker veins and dark or blackish knobs to halteres.

1 ♂ 1 ♀ *G. phileremus* n. sp.

Black; pubescence comparatively short and dense on front part of body, with a more shorn-off appearance, that on occiput in ♂ at least not being very long, not longer than antennal joints 1 and 2 combined, entirely white above and below, but with a slight straw-coloured tint towards apex of abdomen in ♀ especially, due to presence of very pale brassy yellowish depressed pubescence, the very short bristly hairs on ocellar tubercle in ♂, on antennae above in ♂ and

transverse bristles towards apex across hind margins of abdominal segments 4 to apex, the short bristly hairs on hind margins of last tergite and sternite in ♀ and a few bristles on penultimate ventral segment in both sexes black, the bristly hairs on tubercle in ♀ and, to a certain extent, on frons tinted straw-coloured yellowish, the depressed pubescence on frons and hair on antennae above in ♀, however, whitish; legs entirely dark or black and white-scaled, with only a very faint tint of yellowish on tibiae in ♀; wings vitreous hyaline, with the costal cell and base sub-opaquely whitish and the veins brown, becoming yellowish at base, with the yellowish-margined squamae opaquely whitish and white-fringed; halteres yellowish with very pale yellowish white knobs in both sexes. *Head* with the eyes in ♂ in actual contact above for a distance much more than length of ocellar tubercle, about 2 times as long, with the coarser facets in upper half visibly separated from fine ones in lower half; interocular space on vertex in ♀ a little more than 2 times as broad as tubercle; antennae with joint 3 broadest at about basal third, gradually narrowed basally and also apically; proboscis comparatively stout and thick, about 3 mm. long, distinctly and conspicuously spinulated on basal part and labella, its apex not very sharp. *Legs* with 1 spine on middle femora below and with about 3–4 spines on apical outer half of hind ones below; middle tibiae with 2 dark-tipped, pallid spurs apically below. *Hypopygium* of ♂ (text-fig. 190, lateral view and dorso-lateral view of beaked joint) with the basal parts comparatively broad and with longish, fairly conspicuous, hairs above; aedeagus long and conspicuously curved upwards, sickle-like and with a short, medial, ventral process at base below; inner plate at base of beaked apical joint slightly prominent apically.



Text-fig. 190. — Side view of hypopygium of ♂ *Gonarthrus phileremus* n. sp.

Types in the South African Museum.

Length of body: about 8–9 mm.

Length of wing: about 6½–7 mm.

Locality.—S.W. Africa: Kaokoveld; Kamanyab (Mus. Exp., Mar. 1925).

Superficially this species resembles *cygnus* (Big.) and *namaënsis* n. sp., from both of which it is easily distinguished by the longer proboscis, shorter and less attenuated third antennal joints, longer contact of eyes in ♂♂ above and presence of transverse rows of black bristles on abdomen above. From other white-haired species with black transverse bristles it is separated by the characters given in the key.

1 ♂ 1 ♀ *G. irvingi* n. sp.

Black; legs entirely dark or blackish, greyish white-scaled, only the apices of femora on outer side being slightly greyish yellowish; pubescence comparatively short, dull greyish white when viewed from above, but that on front part of occiput, on disc of thorax and on abdomen above very feebly or faintly tinted straw-coloured to straw-coloured yellowish, especially in ♀, when viewed from side and that on abdomen pale straw-coloured in certain lights even in ♂, with the straw-colour in ♀ enhanced by the presence of pale, sericeous yellow, depressed pubescence, the pubescence on head in front and on body below more whitish, the mystax more sericeous white, bristly hairs on ocellar tubercle and on antennae above in ♂ and those on tubercle in ♀ and the transverse rows of bristles on abdominal segments 2–6 above in both sexes black (the bristles on segments 2–4 only found on disc and often only represented by a few, those on 5 and 6 also found laterally and also more conspicuous), without any black bristles on penultimate segment of venter or that before it, with a few intermixed hairs on sides of face in ♂ and towards apex of antennae below in ♂ dark, the rest almost imperceptibly tinted straw-coloured and most of the ocellar and frontal hairs as well as those on antennae above in ♀ faintly yellowish, especially towards their bases; wings vitreous hyaline, with the costal cell and base subopaquely whitish, with the



Text-fig. 191.—Side view of hypopygium of ♂ *Gonarthrus irvingi* n. sp.

veins pale yellowish brown to brownish, becoming pale yellowish at base but more brownish along costal vein at base, with the white-fringed and yellowish-margined squamae opaquely white; halteres yellowish, with almost whitish knobs in both sexes. *Head* with the eyes in ♂ in actual contact for a distance about 2 times as long as ocellar tubercle, with the coarser facets above imperceptibly merging into finer ones below; interocular space on vertex in ♀ a little more than 2 times as broad as tubercle; antennae with joint 3 gradually tapering to apex, with the first terminal joint small and nodular and the terminal style thin and spine-like; proboscis about 1½ mm. long, without any visible spinules below. *Legs* with 1 spine on middle femora below and with about 3–4 spines on apical outer aspect on hind ones below; middle tibiae with only 1 dark-tipped, pallid spur apically below. *Hypopygium* of ♂ (text-fig. 191, lateral view and dorso-lateral view of beaked apical joint) with the basal parts somewhat narrow and elongate and with the inner plate at base of beaked apical joint acutely produced apically; aedeagus only slightly and gradually curved upwards in apical part and without a distinct projecting, medial, ventral, aedeagal process at base.

Types in the Transvaal Museum.

Length of body: about 6 mm.

Length of wing: about 5½ mm.

Locality.—O.F.S.: Bloemfontein (Irving, 6/3/21) (Types).

This species is recognised by its pubescence, which is dull greyish white when viewed from above and pale straw-coloured above when viewed from side, that on abdomen in ♂, in certain lights, with a faint straw-coloured yellowish tint at bases of the hairs. A ♀ labelled by Bezzi as *cygnus* (Big.) (p. 90, Ann. S. Afr. Mus., vol. xviii) differs from the allotype in being slightly larger, with a slightly longer proboscis and with predominantly yellowish, not brownish, hairs on tubercle and frons. In the absence of a ♂ I cannot do otherwise but refer it to this species, of which it may be considered as a variety. It was taken at Potchefstroom and differs from *cygnus* in having black transverse bristles on abdomen.

3 ♂♂ 2 ♀♀ *G. turneri* n. sp.

Body, including legs and tibiae, black; hind margins of ventral segments narrowly pallid; pubescence dense; long and puff-like, dull greyish to greyish white from above, from side that on occiput, front part of thorax and sides of abdomen sericeous whitish, that on

disc and base of thorax, on scutellum and abdomen above with a distinct sericeous yellowish to yellowish tint, even that on occiput anteriorly sometimes with a slight yellowish tint, the yellowish tint on body above enhanced by short depressed, brassy yellowish pubescence on abdomen and greyish yellow bloom on thorax, with an undergrowth of fine and short, dark or blackish hairs present on disc of thorax and abdomen, more evident on thorax, with the bristly hairs on ocellar tubercle and on antennae above in ♂♂ black, entirely whitish to straw-coloured yellowish in ♀♀ or with only a very few intermixed dark ones on tubercle in ♀♀, with the hair on antennal joint 1 below, on face and genae in both sexes silvery white, with the macrochaetae in front of wings yellowish to dark brownish, without any black bristles on scutellum, but with conspicuous black transverse ones on abdomen above discally, not conspicuous on extreme sides and absent from venter posteriorly, with the pubescence on body below predominantly or entirely white to silvery white, that on sides of venter often slightly tinted straw-coloured yellowish, with the dense and fine pubescence on venter, however, white, with the scaling on legs white, that on tibiae, especially hind ones, slightly more yellowish; wings glassy hyaline, the costal cell, base and alula being subopaquely very pale yellowish white, the veins dark brownish to blackish brown, becoming paler and more yellowish basally, with the squamae opaquely whitish and dark or blackish-margined, their fringes white; halteres ochreous yellow, with a tendency for the yellowish knobs to be brownish or blackish brown above. *Head* with the eyes in ♂♂ in actual contact above for a distance at least 2 times as long as tubercle, with the facets in upper half much coarser and obliquely demarcated from finer ones in lower part, with the interocular space in ♀♀ a little more than 2 times as broad as tubercle; antennae with joint 1 quite 5 times as long as joint 2, with 3 rod-like, slightly stouter in ♀♀; proboscis about 2–3 mm. long, with the spinules



Text-fig. 192. — Side view of hypopygium of ♂ *Gonarthrus turneri* n. sp.

distinctly visible, more so on labella. *Legs* without any or with only 1 spine on middle femora below and with about 3–6 spines in apical part on hind ones below, with 2 black-tipped, yellowish spurs on middle tibiae below apically. *Hypopygium* of ♂ (text-fig. 192) with longish hairs in neck region on basal parts, with the inner plate at base of beaked apical joints bluntly produced.

Types in the British Museum.

Length of body: about 6½–8½ mm.

Length of wing: about 5½–8 mm.

Locality.—S. Cape Province: Swellendam (Turner, Nov. 1933) (Types); Tradouw Pass.

Distinguished from *leucophys* by the sericeous whitish pubescence on body above and thorax in front, on head and antennae below and also on body below, by the absence of black bristles on venter and along extreme sides of abdomen, etc. More yellowish-haired specimens differ in having the hair on body below much whiter.

1 ♀ *G. turneri* var. *melalophus* n.

A single ♀-specimen in the South African Museum, from the Tradouw Pass in the Swellendam District probably represents only a variety of *turneri*. It differs from the ♀-allotype only in having the bristly hairs on ocellar tubercle and sides of frons basally entirely black, the depressed pubescence on each side of frons anteriorly sericeous yellowish and with apparently less yellowish-tinted hair on disc of thorax.

Length of body: about 8½ mm.

Length of wing: about 7½ mm.

1 ♀ *G. subtropicalis* n. sp.

(Syn. = ♀ *cylindricus* Bezz. in part.)

This ♀ specimen was labelled and determined as *cylindricus* Bezz. by Bezzi himself (p. 92, Ann. S. Afr. Mus., vol. xviii, 1921). The original description of *cylindricus* Bezz. (Boll. Soc. Ent. Ital., xxxvii, 257, 1905 (1906)) is unfortunately not accessible to me, but according to Bezzi's key and comments on p. 111 (The Bombyliidae of the Ethiopian Region, 1924), it is more than probable that this ♀ is not *cylindricus*. The type of *cylindricus* was taken in Erythraea in the Southern Palaearctic Region. In view of the fact that there are no reliable records of Palaearctic species of *Bombyliidae* south of the

Sahara, it is most unlikely that the specimens from Tropical East Africa, Nyasaland, Rhodesia and Natal, referred to *cylindricus* by Bezzi, really belong to this species. This contention is rendered still more unlikely when it is found that there are more than one white-haired species with a long proboscis in South Africa. The development and presence of characteristic sericeous or silvery whitish pubescence in many species of this genus is a convergent condition dependent upon unknown factors, probably connected with their parasitic habits and their environment. The white-haired forms are thus very difficult to distinguish specifically.

This ♀ is clothed with sericeous white pubescence above and below, with a tendency for the hair on disc of thorax to be slightly straw-coloured yellowish and for the long ones towards apex of abdomen to be distinctly straw-coloured yellowish, the yellowish tint of which is enhanced by the presence of pale brassy yellowish depressed pubescence on abdomen above; pubescence on occiput, mystax, head below and also on abdomen comparatively long and fluffy, that on occiput being markedly long, the long bristly hairs on ocellar tubercle predominantly pale straw-coloured or tinted straw-coloured yellowish, with a few intermixed darkish ones, those on frons also with a very pale straw-coloured tint and the depressed pubescence behind antennae sericeous yellowish, the hair on antennae above tinted very faintly straw-coloured, with the transverse rows of bristles across hind margins of abdominal segments 2–7 black and very conspicuous and also with some black bristles on penultimate ventral segment; wings vitreous hyaline, the costal cell and base subopaquely whitish and the veins brownish, becoming slightly more yellowish basally, with the whitish squamae margined with very dark brownish; halteres brownish yellow, with very pale yellowish knobs; legs black, with greyish white scaling, becoming slightly yellowish towards apices of femora and more greyish yellow on tibiae. *Head* with the interocular space on vertex about 2 times as broad as ocellar tubercle; proboscis very long, about 5 mm. long, distinctly spinulated below; palps with joint 2 nearly 2 times as long as antennal joint 2. *Legs* with 1 spine on middle femora below and about 4 spines on hind ones below in apical half; middle tibiae with 2 dark-tipped, pallid spurs apically below.

Type in the South African Museum.

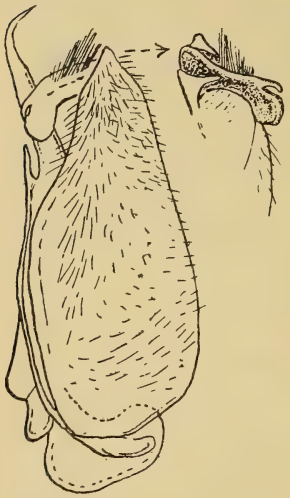
Length of body: about 9 mm.

Length of wing: about 8½ mm.

Locality.—S. Rhodesia: Gwelo (Skaife, Apr. 1917).

1 ♂ *G. nivalis* n. sp.

Black; pubescence above and below (in somewhat denuded type) strikingly sericeous white, that towards apex of abdomen with a faint straw-coloured tint, that on occiput and front part of thorax very dense and comparatively short, not much longer than length of antennal joints 1 and 2 combined, that on abdomen below fine and dense, the bristly hairs on ocellar tubercle, on antennae above, the transverse ones across abdominal segments 5–7 (more developed laterally on 5) and a few on penultimate ventral segment dark blackish brown, the hairs on antennae below and in mystax entirely soft sericeous white; wings slightly greyish hyaline, with the costal cell and base subopaquely whitish, the veins pale brownish, almost yellowish, becoming more yellowish towards base, with the margins of opaquely whitish squamae yellowish; halteres yellowish, their bases slightly brownish and their knobs almost white. *Head* with the eyes in actual contact for a distance subequal to length of ocellar tubercle and then subcontiguous for an equal distance, the upper coarser facets imperceptibly merging into lower finer ones; proboscis slender, about 3 mm. long, distinctly and conspicuously spinulated, with the labella comparatively broad, its apical part more or less bluntly rounded; palps with joint 2 comparatively short and small, not longer than antennal joint 2; antennae with joint 3 broadest in basal half just before middle, gradually narrowed to base and also apically, but with the apical half somewhat rod-like. The legs are unfortunately wanting in this specimen. *Hypopygium* (text-fig. 193, lateral view and dorso-lateral view of beaked apical joint) with longish hairs on dorsum of basal parts; plate bounding base of beaked apical joint on inner side more or less angularly produced apically; aedeagus with only its apex curved upwards and with a well-developed medial, ventral, aedeagal process below.



Text-fig. 193.—Side view of hypopygium of ♂ *Gonarthrus nivalis* n. sp.

Type in the South African Museum.

Length of body: about 7 mm.

Length of wing: about 7 mm.

Locality.—N.W. Transvaal: Junction of Crocodile and Marico Rivers (Tucker, Feb. 1918).

A somewhat narrow-bodied species, recognised by the silvery whitish, comparatively fine and short pubescence, apparent absence of transverse black bristles on segments 2–4 above and laterally and very slender, spinulated proboscis. The fact that the second joints of the palps are much shorter, the proboscis shorter and with more apically rounded labella, that the pubescence is distinctly denser, finer and shorter, and that the black bristles on abdomen are less extensively developed precludes the possibility of its being the ♂ of *subtropicalis*.

2 ♂♂ *G. tenuirostris* n. sp.

These two much denuded specimens differ from *nivalis* n. sp. only in having the silvery or sericeous white pubescence on body and especially on occiput, front part of thorax and in mystax distinctly longer and more shaggy, that on occiput being distinctly longer than length of antennal joints 1 and 2 combined and that on antennal joint 1 distinctly longer; eyes in actual contact above for a distance at least 1½ times or even 2 times the length of ocellar tubercle; proboscis slender and long, especially slender in apical part, about 3–4 mm. long, without any visible spinules and with the labella distinctly narrower and sharply pointed apically, with the basal sheath of proboscis below prominent, long and transversely striate. *Legs* entirely dark blackish brown or black, with 1 spine on middle femora below and about 3–5 spines on hind ones below in apical part; middle tibiae with 2 dark-tipped, pallid, apical spurs below. *Hypopygium* (text-fig. 194, lateral view and dorso-lateral view of beaked joint) with the basal parts somewhat elongate and narrow, with sparse long hairs above; inner plate at base of beaked apical joint not produced apically; aedeagus only very slightly directed upwards



Text-fig. 194.—Side view of hypopygium of ♂ *Gonarthrus tenuirostris* n. sp.

towards apex and with a prominent, medial, ventral, aedeagal process at base.

Type in the Transvaal Museum.

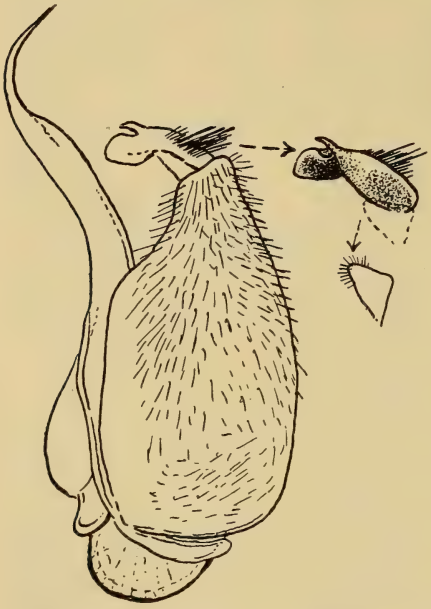
Length of body: about 4½–6 mm.

Length of wing: about 5–6½ mm.

Locality.—S. Rhodesia: Bulawayo (Stevenson, 23/3/21).

2 ♂♂ *G. chioleucus* n. sp.

These partially denuded ♂♂ are so near *tenuirostris* that they may be compared with it. They differ, however, in being slightly more elongate, in having the tibiae distinctly paler, more reddish brown than the femora and with the hind ones distinctly and very much paler, more yellowish brown; white pubescence (as far as can be seen on abdomen) distinctly sparser on abdomen and body below; black hairs on antennae above distinctly shorter and less pilose, and the black transverse bristles on abdomen above only evident posteriorly as in *nivalis* and *tenuirostris*; eyes with the coarser facets in upper half not very distinctly but more demarcated than in *tenuirostris*, from finer ones in lower half; proboscis distinctly less slender and stouter, about 3½ mm. long, also without visible spinules and also with sharply pointed labella and without a prominent and long basal sheath. *Wings* and halteres as in *tenuirostris*, with almost yellowish veins and whitish knobs to the latter. *Legs* with 1 spine on middle femora below and apparently only 2 spines towards apex on hind ones below. *Hypopygium* (text-fig. 195, lateral view and latero-dorsal view of left beaked apical joint) is, however, entirely different from that of *tenuirostris* (cf. text-fig. 194) with broader basal



Text-fig. 195.—Side view of hypopygium of ♂ *Gonarthrus chioleucus* n. sp.

parts, slightly different beaked apical joints, with the inner plate at base of beaked apical joint (*see* outline figure) more angularly produced; aedeagus longer, distinctly curved upwards in apical part and without any ventral, aedeagal process at base below. One very denuded ♀ from the same locality probably also belongs to this species.

Type in the South African Museum.

Length of body: about 6 mm.

Length of wing: about $5\frac{1}{2}$ mm.

Locality.—S.W. Africa: Kaokoveld; Kamanyab (Mus. Exp., Mar. 1925).

Gen. *Paratoxophora* Engel.

(P. 39, Occasional Papers, Rhod. Mus., No. 5, 1936, figs. 1 and 2; Hesse, note on p. 184, Ann. Trans. Mus., vol. xvii, 1936.)

This genus was described by Engel from one specimen which Mr. A. Cuthbertson, of the Rhodesian Agricultural Department, did not include in the Rhodesian *Bombyliidae* which he submitted to me, but which he probably mistook for an Asilid and forwarded to Engel together with his Asilid material. This single holotype of the genus and species, which has now been deposited in the Rhodesian Museum, was kindly loaned to me for examination by the Director, Dr. G. Arnold. From my point of view it was most unfortunate that Engel undertook to describe this new genus, which was already more fully described in MS. form in this paper and under a more appropriate generic name. Engel vaguely referred it to the *Bombyliidae Homoeophthalmae*, a very large division of the *Bombyliidae*, which itself is composed of at least ten subfamilies but to which Engel refers as a subfamily. Moreover he erroneously compared it with *Toxophora* Meig., with which genus and subfamily *Toxophorinae* it has no generic or taxonomic relationship whatever, and scarcely even a superficial resemblance. The generic name of *Paratoxophora* is thus inappropriate and misleading. Less excusable is the fact that this solitary specimen, a ♀ and with dichoptic eyes, was described as a ♂ and designated as the ♂-holotype of the genus and species; the terminal tergite of the ♀, bearing a distinct row of ovipository spines or bristles on each side, having been designated by Engel as an "epipygium."

To obviate the possibility of generic confusion, a more detailed description of this genus is appended below.

Body elongate, cylindrical; pubescence rather sparse on body above, denser on head and body below, that on occiput, ocellar tubercle, antennal joint 1 below, sides of face and down the genae long, bristly and dense, much longer and more shaggy in ♂♂, that on head below shorter, that on front part and sides of thorax denser than on rest of thorax above but shorter than on occiput, that on mesopleural plate and coxae dense and silky; macrochaetal bristles present in front of wing-bases and stoutish, though sparse, bristles are present on sides and base of thorax and on scutellum; transverse rows of slender bristles present across hind margins of abdominal segments above and towards apex of venter below, those towards apex stouter and longer; erect hairs on abdomen denser and longer on sides of segment 1 and on venter, longer and more shaggy in ♂♂, sparse above discally in both sexes; depressed hair-like scaling present, on the whole sparse above, more so in ♂♂, much denser and patchy on sides of abdomen and on venter in both sexes, with the scaling on legs dense on femora and the femora in ♂♂ also with longer and more conspicuous fine hairs. *Head* large, especially in ♂♂, slightly broader across eyes than across broadest part of thorax; occiput with a distinct median groove; eyes large, prominent, more convex and larger in ♂♂, in actual contact above in ♂♂, comparatively narrowly separated in ♀♀, with the upper facets just behind antennae very much coarser than lower ones in the ♂♂; ocellar tubercle more raised and pimple-like in ♂♂; frons broad in ♀♀, diverging anteriorly and there transversely depressed, very small, depressed and triangular in ♂♂; face slightly conically prominent but rounded in front, bare, hairs being present only along sides; genae very narrow and linear, only the upper part slightly broader, separated from tumid rims of buccal cavity by a narrow and deep groove; antennae elongate, with joint 1 slightly thickened, very elongate, subequal in length to 3, with long, bristly hairs below and with bases of the first joints close together, with joint 2 short but longer than broad, with 3 broadest at the base, tapering to apex and with the terminal elements visible as a terminal style; proboscis long and rather stoutish; palps visibly two-jointed, the basal joint long and the much shorter apical joint slightly truncated and broadened apically and directed outwards as in *Gonarthrus*. *Thorax* slightly humped, with the metapleurae entirely bare, no metapleural tuft being present; wings (*see* text-fig. 2, Engel, loc. cit.) comparatively narrow and rather shortish, narrow at base, with only 2 submarginal cells present and with the vein separating these not markedly S-curved and ending

as in *Gonarthrus* a good distance away from the second longitudinal vein, which is, however, slightly undulating and more sinuous at apex than in *Gonarthrus*, with 4 posterior cells present of which the first is open, with the anal cell also broadly open on hind border, with a comparatively narrow and non-lobate axillary lobe, with the alula very much reduced, vestigial, linear, the squamae well developed, transverse, the lower part projecting lobe-like and the wing without a basal comb. *Abdomen* elongate, cylindrical; last tergite (sternite) in ♂♂ elongate and narrow (cf. text-fig. 196, shown to right of left-hand figure). (This segment probably represents a true sternite which has assumed a dorsal position owing to the torsion of the *hypopygium*.) *Legs* well developed, rather long and stoutish, the hind ones the longest; coxae well developed and the front ones elongate; femora with distinct, bristle-like spines along outer and inner sides below on middle and hind ones; tibiae with the spines or spicules well developed and long and with at least 4 rows on the middle and hind ones, with the apical spurs on middle and hind ones long and conspicuous; tarsi with well-developed claws and pulvilli. *Hypopygium* of ♂ (text-fig. 196, lateral view of hypopygium and last tergite (sternite) and ventral view) conspicuous at end of abdomen; basal parts with the inner apical part on inside of beaked apical joints angular and projecting, together forming a sort of guide for the aedeagus; beaked apical joints elongate, cylindrical, shaped as shown in figures, with an outwardly directed process or spine towards the apical beak, with the beak slightly curved downwards and with a crest of stoutish, spine-like bristles on dorsum of the joints; aedeagus remarkably elongate and slender, curved, projecting apically beyond apices of basal parts and also basally beyond their bases where its basal loop is held in position by a membrane (this loop and membrane, shown as shaded in figure, sometimes protrude disc-like from the apex of the abdomen in mounted specimens); base of aedeagus, just before the middle part of pleural apparatus, on each side with a flattened, lobe-like process directed towards the apex of abdomen; middle part with the basal strut directed towards the apical part of abdomen and not towards the base as in other Bombyliine-genera (*see* figures).

According to the descriptions and figure of Wiedemann (p. 352, Aussereurop. Zweifl. Ins., i, Tab. IV, fig. 8, 1828) and Becker (pp. 437 and 473, Ann. Mus. Zool. Acad. Imp. St. Petersb., vol. xvii, 1912), this genus comes very near to *Amictus* Wied. s. str. The generic descriptions of both these authors are, however, so brief and

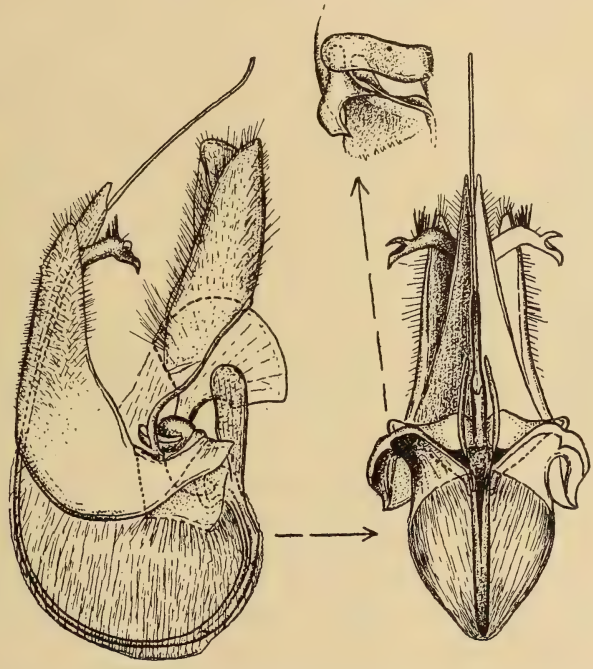
unsatisfactory that it is impossible to determine and correlate the Palaearctic *Amictus* correctly without seeing actual specimens. *Paratoxophora*, however, shows some relationship to *Gonarthrus* Bezz. in having a similar type of wing, with reduced alula, open first posterior cell, same type of vein separating the submarginal cells and no basal comb. Moreover, the palps are similar in having outwardly directed apical joints and the beaked apical joints of the hypopygium also show some resemblance in the presence of a subapical spine or process. Superficially this genus bears a marked resemblance to species of *Thereviidae* or even *Mydaidae*. Genotype is *P. cuthbertsoni* Engel.

13 ♂♂ 8 ♀♀ *P. cuthbertsoni* Engel.

(P. 40, Occasional Papers, Rhod. Mus., No. 5, 1936, figs. 1 and 2.)

Body, including legs, black, with the integument above gleaming slightly dark submetallic bluish, with greyish bloom on the lower parts, on sides of thorax and as 2 central, discal, abbreviated stripes; hind margins of abdominal segments above and on venter narrowly ivory yellowish, the yellowish slightly broader along midline above; pubescence predominantly silvery whitish, almost entirely so in ♂♂, the long and dense hairs on antennae below in ♂♂, those on sides of face, down the genae, on head below and on body below in both sexes gleaming silky or silvery whitish, those on abdominal segment 1, especially the shorter ones, distinctly yellowish in both sexes, those on occiput, some on antennae below and those on front part of thorax in ♀♀ and the hair on scutellum in ♂♂ with a distinctly more sericeous yellowish or even yellowish tinge, with the short hairs on antennal joint 1 above in both sexes, the long apical ones on antennae below in ♀♀, the bristly ones on frons, ocellar tubercle and sides of occiput in ♀♀, a few behind eyes in ♂♂, the more numerous intermixed ones on thorax above in ♀♀, the bristly ones on scutellum in ♀♀, the transverse rows of bristles across hind margins of abdomen above and those across second last ventral segment in both sexes, the shortish hairs on last segments in ♀♀, the hairs towards base of elongated terminal segment in ♂♂ as well as all the spines and spicules on the legs and the macrochaetae in front of wings black, with the hair-like scaling on thorax above straw-coloured yellowish, often whiter in ♂♂, that on scutellum more distinctly yellowish and also denser, that on abdomen above discally (where present) mostly dull black, that on sides of segments concentrated as denser, conspicuous, white patches,

especially in ♂♂ and especially on sides of tergites 2 and 4, that on venter as white patches on sides but sparser and more straw-coloured along midline, with the dense scaling on femora silvery whitish, becoming dark brownish black to black apically, that on tibiae greyish but dark in certain lights and that on tarsi entirely black or dark; wings entirely vitreous to greyish hyaline, iridescent, the costal cell and base slightly more subopaque, the extreme base of



Text-fig. 196.—Side view of hypopygium, together with last sternite (tergite), ventral (dorsal) view (the sternite or tergite removed), and a view of lateral strut and adjacent structures of ♂ *Paratoxophora cuthbertsoni* Engel.

wing blackish brown, with the veins yellowish brown, brownish to even dark brownish or black, becoming darker towards apex, with the discal cross vein much beyond middle, in at least apical third, of discoidal cell, with the squamae subopaquely whitish, bordered with yellowish and fringed with silky white hairs; halteres yellowish, with brownish base and almost whitish knobs. *Head* with the eyes in actual contact above in ♂♂ for a distance nearly or about 3 times as long as tubercle (front view), with the interocular space on vertex in ♀♀ about 2 times as broad as ocellar tubercle; frons in ♀♀ with the sides rather rapidly diverging apically, the circumocellar area shining

and with a tuft of silvery white hairs on each side of the anterior transverse depression; antennae with joint 1 slightly thickened, slightly curved outwards along middle and sometimes slightly broadened apically, especially in ♂♂, about 5–5½ times as long as 2, subequal to 3, with 3 elongate, broadest near base, becoming very slender apically, slightly curved; proboscis about 3–4 mm. long, the apical part and labella spinulate. *Legs* without any apical spines above on femora and with or without a small spicule on front femora below; middle femora with about 3–4 spines on outer side below in apical half and 2–3 on the inner side; hind femora with about 4–5 spines from about middle to apex on outer side below and 2–4 on inner side apically and in ♂♂ often with a row of minute spicules medially below; claws rapidly curved downwards apically and the pulvilli reaching apex of claws. *Hypopygium* of ♂ (text-fig. 196) as described for genus . The ♂-allotype of the genus and species is in the Imperial Institute.

Length of body: about 6–10 mm.

Length of wing: about 5–8 mm.

Locality.—S. Rhodesia: Bulawayo (8/1/22) (♂-allotype) (7/2/23); (Swinburne and Stevenson, 4/2/23) (in Transvaal Museum); Sawmills (12/2/23) (Imp. Ins. Ent.); Gatooma: Georgia (Williams, 3/3/1935) (♀-holotype of Engel). Transvaal: Barberton (Munro, 2/5/13) (Transvaal Museum); Pretoria (Swierstra, 4/15) (Transvaal Museum); Magalieskraal (Lingnau, 26/2/25) (in the Deutsches Entomologisches Institut). Natal: Park Rynie (Barker, 12/20) (Durban Museum); Weenen (Thomasset, 11/25) (British Museum). Zululand: Mfongosi (Jones, Mar.–Apr. 1935). Bechuanaland: Metsimaklaba (V.-L. Kal. Exp., 7–12/3/30) (Transvaal Museum).

This species seems to vary in size and in the colour of the pubescence. A male specimen from "Weenen" in the British Museum differs from the typical ♂♂ in having the long hairs on antennae below yellowish as in the ♀♀ and also with one or two dark ones near apex. Moreover, there are more numerous dark or black hairs on occiput and on scutellum, the first antennal joints appear to be relatively shorter and the proboscis appears to be more slender. This specimen may be considered as only a slight variety or form.

Cheilohadrus n. gen.

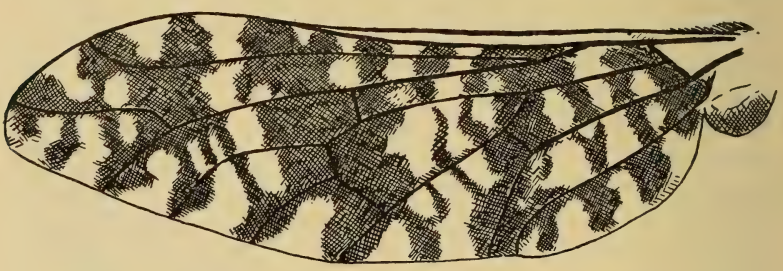
The characters of this new genus are:—*Head* narrower than broadest part of thorax; occiput hollowed below ocellar tubercle, with its

lateral parts behind eyes on each side more or less distinctly tumidly prominent in ♀♀; eyes large and prominent and in contact for some distance above in ♂♂, with the facets in upper half in ♂♂ coarser and imperceptibly merging into the finer ones in lower half; eyes in ♀♀, considerably smaller, the interocular space at narrowest part being comparatively broad, nearly as broad as half the width of head; ocellar tubercle prominently raised and tubercle-like; frons small and triangular in ♂♂, very broad and transversely depressed in front, convex on each side basally in ♀♀, with the inner margins of eyes rapidly diverging anteriorly in ♂♂, more gradually in ♀♀, but when viewed from in front diverging down face in ♂♂ and almost subparallel in ♀♀; face markedly roundly prominent, distinctly tumidly produced or convex in front, with the buccal cavity below separated from the genae by a well-defined and deep furrow and with its rims only prominent on sides; antennae with the first joints slightly thickened, short and slightly separated at bases, with joint 2 short, nodular and with the upper apical part slightly sharply produced, with joint 3 (text-fig. 197) spindle-shaped, broadest at, or just beyond, the middle and from there narrowed apically and basally, the slender base, however, thicker and slightly longer than the attenuated apical part, with the first terminal joint visible as a small basal thickening, the other terminal elements not separately visible, but seen as a slender style, with a dense coat of short, very fine, erect and whitish spinule-like hairs on the dilated part of joint 3 and also with some distinct scaling towards base above; proboscis comparatively short and slender; palps short, the base being very slender, the apical part slightly clavately broadened, with no distinct joints separately visible but with the apical half directed upwards; pubescence on head in form of depressed, flattened, eliptical scaling on occiput, face, more densely on sides of genae and along posterior lower margins of eyes in both sexes and also on frons in ♀♀, and of comparatively stoutish and long bristles on occiput, ocellar tubercle, on sides of frons (more so in ♀♀), on the first antennal joints below, on face in front and laterally and upper parts of the genae as well as fine erect hairs on head below, those on antennal joint 1 below in ♀♀ long.



Text-fig. 197. — Antenna of *Cheilohadrus conspersipennis* n. gen. and n. sp.

Thorax and scutellum covered above with comparatively dense, flattened scaling and short bristly hairs, denser anteriorly and laterally on thorax, without any thicker macrochaetal bristles in front of wing-bases, but slightly longer bristles on posterior calli and on the scutellum posteriorly; pleurae with the meso- and metapleurae comparatively bare, only sparsely-haired and with some flattened scaling, some distinct hairs, however, present on metapleural lobe in front of halteres and also below halteres above hind coxae; wings (text-fig. 198) somewhat elongate, comparatively narrow, mottled or spotted, with the basal comb absent or very vestigial, the second



TEXT-FIG. 198.—Wing of *Cheilohadrus conspersipennis* n. gen. and n. sp.

longitudinal vein curved upwards apically, with 2 submarginal cells present, with 4 posterior cells present, the first posterior cell widely open on hind border, with the vein separating discoidal and third posterior cells shortish, with the discal cross vein much beyond middle of discoidal cell, with the anal cell open on hind border, the hind border of axillary lobe broadly rounded and the alula comparatively well developed and lobe-like; halteres with the knobs more or less triangular, slightly dorso-ventrally compressed, the apical margin truncated or straight. *Abdomen* very densely covered with flattened scaling above and below and also with transverse rows of longish, slender bristles across the hind margins above, denser and slightly longer laterally, interrupted along midline above, with shorter and more slender bristly hairs across hind margins of venter. *Legs* comparatively slender and covered with flattened scaling; femora without any dense hairs below and only a few short, sparse ones in ♂♂ below, but with some slender spines below on hind ones in both sexes; tibiae slender, with an outer and a lower row of spicules on front ones and 2 upper and 2 lower rows on middle and hind ones; tarsi slender, with the claws well developed and the pulvilli also well developed. *Hypopygium* of ♂ (text-fig. 199) with bristly hairs on

the basal parts; beaked apical joints elongate, tapering to a point and provided above with dense, short, bristly hairs, not depressed above but hollowed out below; aedeagus without a ventral process, its dorsum not produced basally above medial part into a process on each side; lateral struts broad and leaf-like.

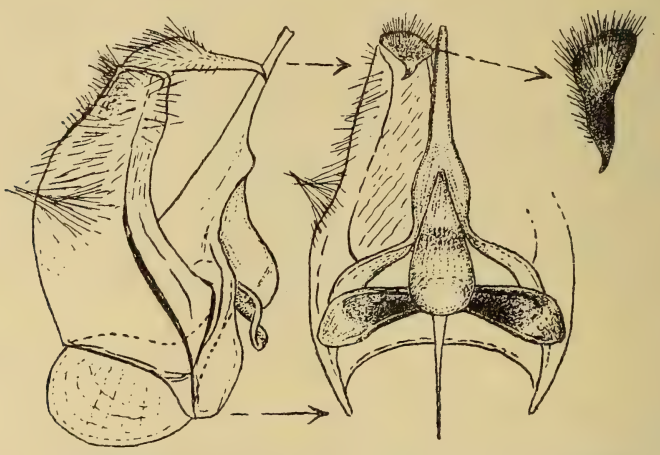
This genus obviously belongs to the *Bombyliinae*. Its relationship to other genera is, however, not so easily established. Its position is somewhat anomalous, but it appears to show some affinities with *Adelidea* and *Sosiomyia* in that the third antennal joints are modified, deviating from the usual condition found in such genera as *Bombylius*, *Systoechus* and *Doliogethes*. With *Adelidea*, *Sosiomyia* and *Conophorina* it agrees in the presence of dense scaling on body above, the presence of bristles only and the modified third antennal joints. From both the former it can, however, readily be distinguished by the presence of only 2 submarginal cells, the absence of a distinct basal comb, the presence of flattened and not fine hair-like scaling on body, etc.

Genotype is *C. conspersipennis* n. sp.

1 ♂ 1 ♀ *C. conspersipennis* n. sp.

Body dull dark brown, the thorax and scutellum above more blackish and pleurae more muddy brown; antennae and proboscis dark blackish brown, the bases of joint 3 slightly paler and more reddish brown; legs pale ochreous yellowish, with the coxae slightly darker, with the scaling dull yellowish and all the spines and spicules black, the last 3 or 4 tarsal joints dark brownish to blackish brown and the claws yellowish, their apical halves blackish; bristles on occiput, frons, antennal joint 1 and comparatively dense ones on face, those on thorax, scutellum and transversely above on abdomen and the shorter ones on venter very dark blackish brown to black, some intermixed ones on occiput and shorter bristly hairs on thorax in front as well as some shortish ones on sides of frons in ♂ more yellowish, the bristly hairs on genae or lower parts of the genae and the finer ones on head below and on head, posteriorly behind, pale yellowish brown, those on pleurae, pectus, on coxae and on sides of abdominal segment 1 dull straw-coloured yellowish or brownish, those towards pectus and lower parts of pleurae more whitish, those in metapleural tuft and first abdominal segment with a more pale yellowish brown to pale brownish tint in certain lights, with the shortish ones at basal half of venter and along extreme sides of

abdomen below yellowish; flattened, depressed scales on body above dull whitish on occiput, frons and face, composed of broader white ones on front part of thorax as 2 indefinite discal patches, on posterior calli, across base of thorax and across posterior part of scutellum and of slightly narrower pale brownish golden scales on disc of thorax and scutellum, those on abdomen above dense, white across the hind margins from segment 2 posteriorly, more concentrated across the apical margins where they are also more creamy especially in ♀, the



TEXT-FIG. 199.—Side view, greater part of ventral view of hypopygium, and dorsal view of beaked apical joint of ♂ *Cheilohadrus conspersipennis* n. gen. and n. sp.

white scaling being interrupted on each side of the segments above by a broadish, discal, longitudinal band and an extreme lateral band of brownish golden scaling, extending from the middle of segment 2 to apex on inner band and to segment 5 on lateral band and with the brownish scaling at the apical margins of the segments in these bands very deep reddish brown, appearing as rows of spots, thus rendering the broad middle band of white scaling more conspicuous, with sparser, dull whitish scaling on pleurae and on mesopleuron and also with whitish scaling more or less transversely across apical margins of venter; wings (text-fig. 198) mottled, with brownish to blackish brown and opaquely white markings as shown in the figure, the dark being more evident as transverse bands, with the costal cell and base opaquely yellowish or yellowish white and unspotted, the veins dark brown, the cross veins being slightly darker and the costal and first longitudinal veins more yellowish, with the alula and opaquely dull

whitish squamae fringed with white hairs; halteres yellowish brown, with darker brownish knobs. *Head* with the eyes in ♂ in contact for a distance about equal to length of ocellar tubercle, with the interocular space in ♀ nearly 4 times as broad as tubercle; antennae with joint 1 only about, or a little more than, 2 times as long as joint 2 and with very long and stoutish bristles below, especially in ♀, with joint 3 (text-fig. 197) quite 1½ times as long as 1 and 2 combined, covered with silvery white scaling above basally and with a dense coat of whitish, spinule-like, short hairs on middle thickened part, especially below, with the first small terminal element and its style situated slightly on dorsal aspect of apex; proboscis about 1 mm. long. *Legs* with 5–6 almost bristle-like spines below on hind femora on outer side from just before middle and with 1 spine at apex on inner side below; claws gradually curved downwards apically and pulvilli extending to beyond middle of claws. *Hypopygium* of ♂ (text-fig. 199) with the beaked apical joints shaped as shown in the figures, its basal half above convex; aedeagus straight, fairly stout; basal strut more or less racket-shaped (outline shown in figure).

Holotype in the Transvaal Museum, allotype in the South African Museum.

Length of body: about 4½–5 mm.

Length of wing: about 5–5¼ mm.

Locality.—Little Karoo: Willowmore (Brauns, 6/9/1919).

The shape of the third antennal joints, the very darkly speckled or mottled wings and the presence of dense whitish scaling and four longitudinal bands of brownish golden scaling on abdomen, render this species easily recognisable. The mottled wings give this species some superficial resemblance to some species of *Bombylius*, *Anthrax* and *Exoprosopa*, which also have speckled wings.

3 ♀♀ *C. conspersipennis* var. *xerophilus* n.

These 3 ♀♀, though differing from the ♀-type of *conspersipennis* in certain respects and in the absence of ♂♂, may be provisionally considered as a Northern variety. They differ from the allotype-♀ of *conspersipennis* in being slightly larger, about 5–6 mm. long and with a wing-length of about 5½–6½ mm., in being on the whole darker, more blackish, the pleurae darker, with the femora, not yellowish, but distinctly darker, more blackish brown to blackish, only the apices or apical parts being yellowish; bristly hairs on genae tending to be darker and less brownish yellowish, with the two longitudinal

bands of dark scaling on abdomen (where these are not denuded) even darker brownish; wings distinctly much darker, with the dark spots or mottling deeper blackish brown to sooty blackish, with the clearer milky whitish spots separating the more or less 3 transverse continuous black patches, not as in *conspersipennis* with roundish or quadrate milky whitish clearer patches, but with even more clear spots or with more irregular spots, which appear to be broken up by irregular dark markings, which markings, though practically the same as in *conspersipennis*, sometimes appear narrower and more linear, with the veins also distinctly darker, very deep blackish brown to black and with the knobs of halteres also slightly darker and more blackish brown above. *Head* with the interocular space, relative to tubercle, slightly narrower and only about, or scarcely more than, 3 times as broad as tubercle, with antennal joint 1 tending to be less thickened. The speckled nature of the wings even among these 3 ♀♀ appears to be slightly variable. One ♀-paratype from Namaqualand has the clearer areas in the wings more extensive.

Type in the South African Museum.

Locality.—South West Africa: Aminuis (Thorne, July 1936) (Type). Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931).

Gen. *Adelidea* Macq.

(P. 84, Dipt. Exot. ii, 1840; = *Sobarus* Lw. by Loew in Neue Beitr., iii, 39, iv, 1855, and p. 191, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 100, The Bombyliidae of the Ethiopian Region, 1924.)

There is probably no doubt that *Sobarus* Lw. is identical with *Adelidea* and that *A. fuscipennis* Macq. (p. 84, loc. cit.) is specifically the same as *anomala* Wied., though in the figures given by Macquart (Tab. VI, figs. 1 and 1, *a*) and especially in fig. 1, *a*, the third antennal joint is not so markedly broadened or pyriform in shape as portrayed, a shape which is found in the genus *Sosiomyia* of Bezzi.

The genus *Adelidea* is chiefly characterised by having 3 submarginal cells in the wings and an open first posterior cell, the latter character separating it at once from the subgenus *Triplasius* Lw. of *Bombylius*. Other distinguishing characters are the comparatively sparse, erect pubescence on body above, comparatively and markedly sparse pubescence on pleurae and body below, the presence of obviously fine, depressed or subdepressed, sericeous yellowish, brassy yellowish to golden yellowish scaling above on all the known species, the presence of a distinctly visible coat of dense, fine, erect, spinule-like

pubescence on antennal joint 3 below in the majority of the forms (*see* text-figs. 200–205), the dull, greyish or greenish grey bloom on the body above, which in most of the species gives these insects a dull greenish appearance. The palps are usually well developed and the apical joints sometimes very elongate. The wings are apparently always infuscated and never entirely hyaline and spots or darker infuscations are often found on the cross veins or on some of them at least. The *hypopygium* of the ♂♂ (text-figs. 200–206) is characterised by the shape of the beaked apical joints, which are more or less dorso-ventrally compressed, scarcely depressed and more plane above, more hollowed out below, with the outer, apical angle almost always prominently subangular or even subacute and with the dorsum provided with backwardly directed, stiffish, bristly hairs; aedeagus more or less hidden, from below, by the ventral aedeagal process, which is either in form of a single forwardly projecting structure or a more complex process, more or less divided apically into two broadened, thin, lamellar, flap-like lobes curled downwards and inwards apically to form a kind of hood or cowl (*see* text-figs.). Some members of this genus are hydrelophilous, having a predilection for frequenting damp or wet environments, settling on mossy banks, damp soil or on rocks along streams or even along dried-up water-courses some of which contain water only during certain seasons.

Key to the known species of Adelidea.

1. (14) Wings not uniformly infuscated, the costal cell, greater part or basal half of marginal cell, greater part or basal half of enclosed third submarginal cell, first and second basal cells and base or at least costal cell, basal half of marginal cell, base of first basal cell and base always distinctly, even if only slightly, darker than posterior and apical part, with the discal cross vein at less than apical third and more often distinctly much less than apical third of discoidal cell, with the marginal cell only slightly dilated apically; whitish opaque spot in apical part of second basal cell comparatively small, inconspicuous and often absent; bristly hairs on disc of thorax, bristles on scutellum and transverse rows of bristles on abdomen above predominantly yellowish, brownish to deep reddish or reddish brown, rarely dark blackish brown or black and then only so on abdomen above; legs with the spines better developed, usually with at least 1 spine on front femora below and usually with more numerous spines on hind ones below and with the spinules on front tibiae more developed and not markedly feebler than those on middle ones; hypopygium of ♂♂ (text-figs. 200–204) usually with the outer apical angle of beaked apical joints angularly produced . . 2.
2. (3) Body above distinctly more pubescent, with comparatively dense, erect, brassy yellowish hairs in addition to fine depressed brassy pubescence,

with all the bristly hairs and bristles on body above brassy or sericeous yellowish; integument of face and genae black and with whitish pubescence; wings without any darker spots or infuscations on or along the cross veins, almost uniformly tinged faintly brownish, only the costal cell, basal half of marginal cell, base of first basal cell and base slightly darker and more brownish; legs with entirely black femora and with comparatively conspicuous and dense, subdepressed pubescence, especially on femora, and with the spines on hind femora below feeble, almost hair-like and passing into short, slender, bristly hairs towards base; hypopygium (text-fig. 200, *b*) with the outer apical angle of beaked apical joints not very prominent or angular, with the ventral aedeagal process below aedeagus in form of a blunt, cone-like process

♂ *nigrifemoris* n. sp. (p. 686).

3. (2) Body above conspicuously less pubescent, the short, erect hairs being comparatively sparse and the depressed brassy or golden pubescence denser and more conspicuous, with the bristly hairs and bristles on body above darker, being dark yellowish brown, reddish, dark reddish, reddish brown, brownish to blackish brown and not pale yellowish everywhere; integument of face and genae pallid, yellowish or brownish, not entirely black, with the pubescence yellowish or at least always with some yellowish hairs, even if only in front; wings always with distinct spots or infuscations on or along at least some of the cross veins and with the front part or half of wings always distinctly, often conspicuously, darker than posterior part (if not very distinct then spots are at least present on cross veins); legs, excepting only the apices of tarsi, entirely yellowish, reddish to pale brownish yellow or red and in ♂♂ with the normal type of hair-like scaling, not particularly pubescent or dense, with the spines on hind femora below more conspicuous, stronger and stouter; hypopygium of ♂♂ (text-figs. 201–204, *a*) with the outer apical angle of beaked apical joints distinctly more produced and angular, with the ventral aedeagal process differently shaped . . . . . 4.

4. (5) Larger and more bulky species, about 10–12½ mm. long, with a wing-length of about 11½–14½ mm.; wings with a more reddish brown infuscation, with the anterior darker part less marked off, more darker reddish brown and with a slight reddish ochreous tinge, especially in the costal cell and base, with the veins, especially costal and first longitudinal ones, deeply reddish to reddish brown and spots on cross veins fewer and more indistinct; squamae with the fringe on part nearest alula blackish and that on the basal part pallid or yellowish; bristles on thorax, in front of wings and on mesopleuron, more developed and denser and all, including posterior callar bristles, those on abdomen, especially laterally, and some intermixed stout ones on middle and hind coxae and the frontal bristles in ♀♀, red or reddish; antennal joint 3 distinctly club-shaped, with the base broad and often knob-like, not covered with a visible and conspicuous coat of very fine, dense, erect, spinule-like pubescence below, with the first and second terminal joints more developed and more conspicuous; legs markedly long and well developed, usually more pale reddish to pale reddish brown, with the spines red or reddish, very long and stout and those on hind femora below comparatively dense and

irregularly crowded together near apex; hypopygium (text-fig. 201, *a*) with the outer apical angle of beaked apical joints acutely subangular and produced, with the ventral aedeagal process in form of a single process, the apical part of which is hollowed out below and recurved
♂ ♀ *immaculata* Bezz. (p. 688).

5. (4) Small to medium-sized species, about 6–9 mm. long, with a wing-length of about 7–10 mm.; wings with a more dull brownish or brownish yellow infuscation, the anterior part being usually more distinctly marked off and darker yellowish brown or brownish, with the veins more yellowish brown, brownish or dark brown and with more spots or infuscations which are also more distinct and conspicuous on cross veins and bases of some of the others in posterior more translucent half; squamae with the entire fringe whitish or pale yellowish; bristles on thorax in front of wings and on mesopleuron less developed and not all the rest of the bristles on body above red or reddish, those on middle and hind coxae, on frons in ♀♀ and on abdomen not distinctly red or reddish; antennal joint 3 not distinctly club-shaped, the base, when thickened, not rapidly knob-like, covered with a distinctly visible, dense coat of short, erect, fine, spinule-like pubescence, especially below in addition to scattered short hairs, with the first and second terminal joints less developed, the first being much narrower than apex of 3 and often scarcely visible; legs apparently less developed, more pale reddish-yellow, pale yellowish brown or ochreous yellow, with the spines moderately developed, less red and those towards apex of hind femora less crowded irregularly together; hypopygium of ♂♂ (text-figs. 202–204, *a*) with the outer apical angle of beaked apical joints slightly less angularly produced and the ventral aedeagal process in form of a hood-like or cowl-like structure the thin lamellar apical edge on each side of which is usually curled over ventrally below to enclose a cowl-like or cup-like hollow . . 6.

6. (13) Wings with the darker front half well marked off from greyish hyaline or less infuscated posterior half; antennal joints 1 and 2 black or at least dark; second joints of palps markedly elongate; proboscis entirely black and basal joints of palps also dark; sides of abdomen above, apex of abdomen and greater part of venter dark or blackish and only hind margins of ventral segments may be reddish; pleurae predominantly dark or black; halteres yellowish to yellowish brown and the lower surfaces of the knobs usually also darkened; transverse rows of bristles across hind margins of abdomen usually not predominantly or entirely very dark or black (if so antennal joints 1 and 2 and pleurae are black); antennal joint 3 (side view) stouter, usually broadened near base and again towards apex, the dorsal margin being more sinuous at about the middle (see text-figs. 202–203, *b*); hind femora usually with only 1 spine on the outer apical aspect and usually with some spines or a row of spines apically on inner aspect below; hypopygium of ♂♂ (text-figs. 202–203, *a*) with the outer apical part of beaked apical joints less produced lobe-like . . . . . 7.

7. (10) Wings with distinct and often conspicuous spots or infuscations on basal cross vein of fourth posterior cell, basal cross vein of first posterior cell, on cross veins (or vein) at apex of enclosed third submarginal cell, on

apical cross vein of discoidal cell and at base of vein separating discoidal and third posterior cells . . . . . 8.

8. (9) These spots or infuscations large, broad, rounded and very conspicuous and the anterior darker infuscation occupying entire marginal cell; dense, short, erect, bristly hairs on each side at base of abdominal segment 1, pubescent fringe across hind margin of tergite 1 and also on sides of the other segments tending to be more whitish, even silvery whitish in certain lights, especially in ♀♀; bristly hairs on tubercle, sides of frons and on antennae above in ♀♀ predominantly or entirely pale brownish or bronzy yellowish and hairs on occiput tending to be paler and more whitish in both sexes due to the fact that the short, depressed, golden yellow pubescence is distinctly less dense, shorter and even paler there; antennal joint 3 comparatively stout and incrassate (text-fig. 203, *b*), markedly broad near base in ♀♀ at least; hypopygium of ♂ (text-fig. 203, *a*) with the aedeagus slightly longer and more visible from below and the ventral, aedeagal process narrower, more cowl-like, the thin lamellar sides more curled over and the basal strut shorter

♂ ♀ *maculata* n. sp. (p. 694).

9. (8) These spots smaller, less conspicuous and those on posterior part of wings linear and not rounded, more indistinct and often almost absent, the anterior darker infuscation also not occupying entire marginal cell, the apex or apical part being more hyaline; hair on sides of first abdominal segment and also on sides of the others distinctly more yellowish to golden yellowish; bristly hairs on tubercle, sides of face and on antennae above in ♀♀ predominantly darker and more blackish brown to black and hairs on occiput also distinctly more yellowish, the short depressed pubescence there being denser, longer and more deep golden; antennal joint 3 (text-fig. 202, *b*) less stout and more slender, the broad base distinctly less deep and prominent; hypopygium of ♂ (text-fig. 202, *a*) with the aedeagus shorter, only visible through apical emargination of ventral process, with the ventral aedeagal process broader, the thin lamellar flaps less curled over and also more rounded, with the basal strut longer and more developed

♂ ♀ *anomala* Wied. (and forms) (p. 691).
(Syn. =*fuscipennis* Macq.)

10. (7) Wings with the spots or infuscations on cross veins very faint, almost indistinct, the posterior more hyaline part almost without spots, faint and indistinct linear infuscations being present only on cross vein of fourth posterior cell, basal cross vein of first posterior cell and very indistinct ones at base of vein separating discoidal and third posterior cells, apical cross vein of discoidal cell and a scarcely distinguishable one on lower cross vein at apex of enclosed submarginal cell . . 11.

11. (12) Wings, on the whole, distinctly tinged more yellowish brown, the darker part in front only darker yellowish brown; legs entirely yellowish in both sexes; pubescence with fewer black bristly hairs on antennal joint 1 and also with fewer dark or blackish bristles on abdomen and black intermixed bristly hairs on thorax in ♀♀ especially

♂ ♀ *anomala* Wied. (var. of it) (p. 691).

12. (11) Wings distinctly tinged much darker, more smoky or cinereous, the

darker part in front less yellowish and more dark brownish; legs with the bases of the front and middle femora and almost the entire hind ones, especially above and along sides, black in ♂♂; pubescence with distinctly, or with entirely, black hairs on antennal joints, with more numerous and more extensive black bristles on abdomen above, especially in ♀♀, and also with more conspicuous black bristly hairs on thorax above ♂ ♀ *anomala* var. *fuligineipennis* n. (p. 693).

13. (6) Wings with the infuscated front part not well marked off but imperceptibly merging into the very slightly less infuscated posterior part; antennal joints 1 and 2 very pale yellowish red; second joints of palps very much shorter; proboscis distinctly reddish below or with a reddish infuscation towards base and with the basal joints of palps also reddish; sides of abdomen broadly above, apex or greater part of last 2 or 3 segments and venter below pale yellowish red; pleurae, even up to in front of wings, predominantly pale yellowish red or reddish; halteres pallid, with the apical part and knobs extensively very pale yellowish white or ivory whitish; transverse rows of bristles on abdomen above predominantly and strikingly black; antennal joint 3, from side, more slender, tapering gradually from broadest part at base, only the extreme apex slightly directed downwards; hind femora usually with 3 spines in an irregular row on the outer apical aspect and without any row of distinct spines on inner lower apical aspect; hypopygium of ♂ (text-fig. 204) with the outer apical part of beaked apical joints strongly produced, more prominent and lobe-like . ♂ ♀ *ruficornis* Bezz. (p. 696).

14. (1) Wings distinctly more uniformly infuscated dark brownish to very dark blackish brown, the costal or front part not visibly much darker than posterior and apical part, with the veins showing up owing to a slightly darker, or much darker, infuscation along them, with the discal cross vein at more than apical third, or nearer middle, of discoidal cell, with the marginal cell distinctly and conspicuously more rapidly enlarged or dilated apically; whitish opaque spot in apical part of second basal cell more distinct, comparatively larger, more rounded and more conspicuous; bristly hairs on disc of thorax, on scutellum and transversely on abdomen predominantly or entirely black; legs with the spines on femora more feebly developed, without any or with only a feeble spine on front ones below, with fewer and feebler spines on hind ones below and with the spinules on front tibiae feebler and markedly less developed than on middle tibiae; hypopygium of ♂♂ (text-figs. 205 and 206) with the outer apical part or angle of beaked apical joints not prominently produced, angularly prominent or lobe-like . . . . . 15.

15. (16) Wings paler, more dark yellowish brown or brownish, with the infuscation along veins narrower and less distinct, no distinct and spot-like, more hyaline areas being conspicuous in middle parts of the cells; palps distinctly shorter, shorter than antennal joints combined and with the apical joints distinctly very much shorter than antennal joint 3; proboscis slightly shorter, about 2–2½ mm. long; interocular space in ♂ much narrower, only about as broad as narrow front part of tubercle and scarcely broader than front ocellus, not quite 3 times as broad as tubercle in ♀; pubescence with the bristly hairs on face paler and more yellowish

and that on head above in ♀ darker and with the depressed pubescence on body above slightly deeper and more golden yellowish in ♀ at least; legs with fewer, only about 3–4 spines in apical half below on hind femora and usually with none on front ones; hypopygium of ♂ (text-fig. 205, *a*) with only fine and shortish pubescence on basal parts and with a slightly differently shaped beaked apical joint, which has shorter hairs above

♂ ♀ *braunsii* Bezz. (p. 698).

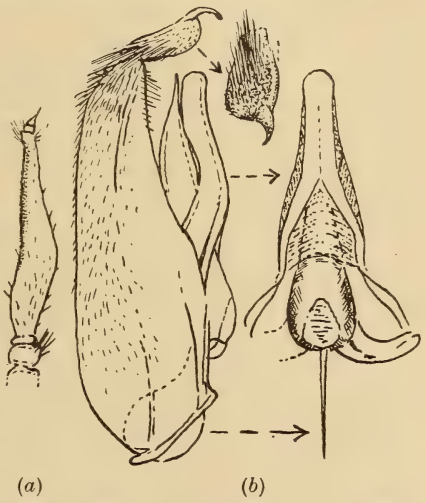
16. (15) Wings very much darker, very dark blackish brown to lamp black, appearing almost sooty black above in certain lights, with the infuscation along veins very much broader, marking off clearer spot-like areas in middle parts of cells, thus giving the wings a spotted appearance; palps distinctly longer, more slender, more visibly projecting, quite as long as, or much longer than, antennae and with the apical joints elongate, often longer than third antennal joints; proboscis slightly longer, about 3–3½ mm. long; interocular space in ♂ very much broader, as broad as broad tubercle or at least as broad as front part of tubercle, even more than 3 times as broad as tubercle in ♀; pubescence with the bristly hairs on face and genae predominantly blackish and that on head above in ♀ paler and with the depressed pubescence on body above slightly paler, more whitish or pale sericeous yellowish; legs usually with about 6–8 spines on hind femora below, beginning before middle and often with 1 spine on front femora below; hypopygium of ♂ (text-fig. 206) with distinctly denser and longer pubescence on basal parts and beaked apical joints and with the beaked joints slightly differently shaped

♂ ♀ *pterosticta* n. sp. (p. 700).

1 ♂ *A. nigrifemoris* n. sp.

Body, including antennae, face, head below and venter, entirely black; legs with the coxae, trochanters and entire femora black, the tibiae yellowish, but the hind ones appearing more brownish owing to fine, dark, hair-like scaling, with the tarsi yellowish, becoming brownish to dark blackish brown apically and the hind ones more brownish, due to the fine, dark, hair-like scaling, with the pubescent hairs on femora whitish, more yellowish to yellowish brown on outer apical aspect of hind ones, with the spines yellowish; erect and depressed pubescence above pale brassy yellowish when viewed from above, that on front part of thorax and to a great extent on occiput having a more whitish tint from side, that on disc of thorax, scutellum and abdomen pale golden or brassy yellowish from side, the bristly hairs on ocellar tubercle sericeous yellowish, the pubescence on frons, bristly hairs on antennal joint 1, bristly hairs on face and head below and on pectoral and pleural regions whitish, becoming more straw-coloured yellowish on upper parts of mesopleuron and on basal part of venter; wings tinged faintly translucent brownish, becoming

slightly darker and even more yellowish towards the anterior and basal parts, the base, costal cell and basal half of first basal cell being more subopaquely yellowish brown, with the veins brownish and without any distinct infuscations on the cross veins and with a whitish fringe to opaquely whitish squamae; halteres dirty yellowish or very pale yellowish brown, becoming more brownish on knobs below and more ivory whitish on knobs above. *Head* with the interocular space, at narrowest part, about as broad as front part of ocellar tubercle, with the inner margins of eyes at first almost parallel, only very gradually diverging for a little distance and then rapidly diverging anteriorly; frons slightly longitudinally depressed; antennae with joint 3 (text-fig. 200, *a* of ♂) nearly 1½ times as long as 1 and 2 combined, broadest at or just before middle and more rapidly narrowed towards apex, with only a few scattered fine hairs towards base, dorsally and near apex and with only a very feeble coat of very fine, almost invisible, pubescence below but no distinct visible spinule-like hairs below as in *anomala* Wied., with the first 2 terminal joints not very distinctly separately visible, apparent only as thickening at base of terminal style; face and genae with comparatively sparse pubescence; proboscis about 4 mm. long. *Thorax* and abdomen above, in addition to short subdepressed pubescence, with comparatively dense, longer, erect hairs (for this genus), longer and more pubescent on abdomen and with the transverse rows of longer bristly hairs scarcely different from the rest of the hair. *Legs* with comparatively longer and more pubescent hairs (for this genus) on the femora and tibiae; front femora with 1 or 2 spines on inner apical aspect; middle ones with about 3 or 4 slender spines on inner apical aspect below; hind ones with about 10 or 11 slender spines in apical half below, passing basally into a row of slender hairs and in apical part more or less arranged in 2 rows of which 1 or 2 longer



Text-fig. 200.—(*a*) Antenna of ♂ *Adelidea nigrifemoris*. (*b*) Side view of hypopygium and ventral view of aedeagal structures of ♂ *A. nigrifemoris* n. sp.

ones are on outer surface near apex. *Hypopygium* (text-fig. 200, *b*: lateral view, dorsal view of beaked apical joint and ventral view of aedeagal process, etc.) with the aedeagus hidden from below by blunt, tubular ventral process, formed by forward continuation of contiguous or fused rami.

Type in the South African Museum.

Length of body: about 8 mm.

Length of wing: about 8 mm.

Locality.—E. Cape Province: Grahamstown; Resolution (Walton, Jan.–Apr. 1928).

This species may be easily distinguished from all other known species of *Adelidea* by the comparatively denser and entirely yellowish pubescence on body above, less infuscated wings and entirely black and more pubescent femora.

A. immaculata Bezz.

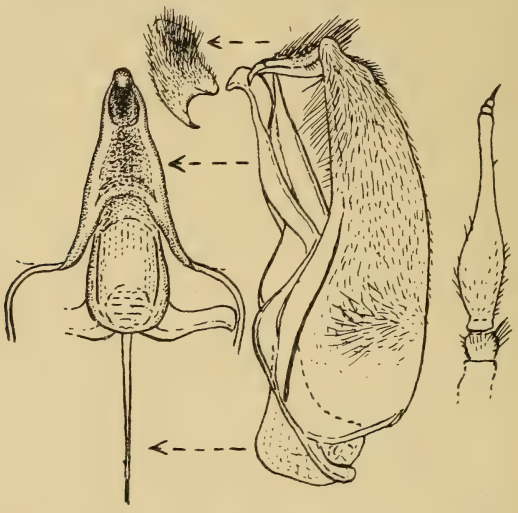
(As var. of *anomala* Wied., p. 74–75, Broteria (Ser. Zool.), vol. xx, Fasc. II, 1922.)

According to Bezzi's description of a ♂ of this species (as a var. of *anomala* Wied.), and according to another ♂-specimen in the collection of the late Dr Brauns, caught at the same place and at the same time and also labelled as "*anomala* var. *immaculata*," two ♀♀ from Clanwilliam as well as a number of ♂♂ in the South African Museum from Namaqualand, belong to the same species. From the description of the wing-characters, as well as the specimens before me, it is evident that these specimens can not be referred to *anomala* even as a variety. The description is, however, very vague and does not make any reference to important and differentiating characters, which distinguish it from *anomala* Wied. A fuller description of *immaculata* Bezz., which is now raised to the status of a separate species, is as follows:—

Black, the integument above with dull greyish green to greyish whitish bloom and more distinct greyish white to whitish bloom below; antennal joint 1 and, to a certain extent, joint 2 above, face and genae, a large spot on each side of pronotum just above anterior spiracle, extreme lateral hind margins of abdominal segments 5 to apex, the hind margins of ♀-genital segment and hind margins of last sternite in ♀♀, pale yellowish red to reddish, with often a slight reddish infusion along sutures in mesopleural region and with pallid, yellowish or very pale yellowish red, narrow hind margins to ventral

segments (the latter evident only on last few segments in ♀♀); exposed ♂-hypopygium yellowish; legs pale reddish yellow to reddish brown, with only the last tarsal joint darkened, the spines reddish and the fine, hair-like scaling whitish; pubescence with the fine, depressed scaling on body above fairly dense, sericeous yellow to pale brassy yellowish and with a brassy sheen, giving the body a distinct yellowish tint, becoming more golden on thorax in front and distinctly more whitish on sides of thorax in front and just above wings and along extreme sides of abdomen, the erect pubescence on occiput yellowish, slightly paler in ♂♂, that on thorax, scutellum and abdomen above reddish to reddish brown, with a dark and more mauvish tint in certain lights in some ♂♂, paler and more yellowish in ♀♀, with the dense bristles and macrochaetae in front of wings, posterior callar bristles, those across hind part of scutellum and those laterally across hind margins of abdominal segments, on venter, and intermixed ones on middle and hind coxae, rufous brown to red, those on sides of abdomen often with a reddish or orange golden tint and those on venter slightly paler, with some of the long bristles on scutellum and discal ones on abdomen above often darker, even very dark purplish red or brown in ♂♂ especially, with the bristly hairs on ocellar tubercle dark reddish brown in ♂♂, paler and more reddish in ♀♀, the stout frontal bristles in ♀♀ pale reddish, with the bristly hairs on antennae and face pale sericeous yellow to yellowish, those on antennal joint 1 above in ♂♂ often tinted slightly darker and those on antennal joint 2 above even blackish, with the pubescence on head below, on front coxae and pleurae and the short depressed pubescence on basal half of venter greyish or silvery whitish; wings infuscated ochreous reddish brown, with a more distinct ochreous tinge in certain lights, becoming paler and more yellowish or slightly ochreous in posterior half and darker, more reddish brown anteriorly and basally (in basal two-thirds of marginal cell, basal half of enclosed third submarginal cell, first and second basal cells, base of anal and axillary cells and alula), the costal cell and base being distinctly more subopaquely ochreous brown or reddish, with the spines in basal comb blackish brown, with the veins pale reddish brown or reddish, becoming dark towards their apices, the costal and first longitudinal veins being more conspicuously reddish, with a faint infuscation on apical cross veins of first and second basal cells, with the opaquely brownish squamae fringed with short, dark or blackish hairs near alula and with straw-coloured to faintly yellowish ones towards their bases; halteres pale yellowish brown, with very pale yellowish white knobs.

Head with the interocular space in ♂♂, at narrowest part, about as broad as front part of tubercle, nearly 4 times as broad as tubercle in ♀♀; antennae with joint 3 club-shaped, knob-like enlarged at base, then gradually tapering apically in ♂♂ and, in ♀♀ (text-fig. 201, *b*), slightly less rapidly enlarged basally and with a shorter apical part, with only a few scattered short hairs above basally, but without any distinct coat of dense, short, whitish, spinule-like pubescence below, with the first terminal joint well developed and visible, nodular and



(*a*) (*b*)

Text-fig. 201.—(*a*) Ventral view of aedeagus and side view of hypopygium of *Adelidea immaculata* (Bezz.). (*b*) Antenna of ♀, same species.

about as broad as 3 apically, the second terminal joint also distinctly visible and the terminal style straight and slender; proboscis about 5–5½ mm. long. *Legs* comparatively long in relation to body, especially the hind ones; front femora with about 4–5 spines just beyond middle in ♂♂ and about 2 or 3 in ♀♀, these spines more or less irregularly in 2 rows; middle femora with about 7–8 spines on lower outer apical aspect in ♀♀ and about 7–10 (usually 8–9) stouter ones in ♂♂, more or less arranged in 3 irregular rows and 2–3 on inner lower aspect in both sexes; hind ones with about 15–23 spines below from near base to apex, stouter in ♂♂ and with those nearer apex crowded together in more or less 3 or 4 irregular rows and extending also laterally on outer face, also with an inner lower row of small spines and 1 or 2 larger apical ones. *Hypopygium* of ♂ (text-fig. 201, *a*:

lateral view, dorsal view of beaked apical joint and ventral view of aedeagal process) with the outer apical angle of beaked apical joints markedly acute and subangularly produced, lobe-like prominent; ventral aedeagal process more or less depressed or hollowed out below, especially apically, where the apical part is also slightly curved downwards like the prow of a boat and the lateral ridge also more prominent.

Length of body: about 10–12½ mm.

Length of wing: about 11½–14½ mm.

Locality.—S.E. Cape Province, W. Cape Province and Namaqualand. (Transvaal and South African Museums.)

This species is at once recognised by its large and bulky size, reddish brown infuscated wings, the darker front half of which is not well marked off from the posterior part, the predominance of reddish bristles and spines and the more numerous and stouter spines on the femora. From *anomala* Wied. it differs in being larger, in having reddish first antennal joints, denser and longer reddish bristles on body, more reddish brown wings, the darker front part of which is not well marked off from the rest, without 5 distinct spots on the cross veins, with a distinctly more club-shaped third antennal joint, which is not covered ventrally with a dense coat of fine, erect, spinule-like pubescence, narrower reddish hind margins of venter, more numerous spines on femora and the differently shaped ventral aedeagal process of hypopygium (cf. text-fig. 202, *a*).

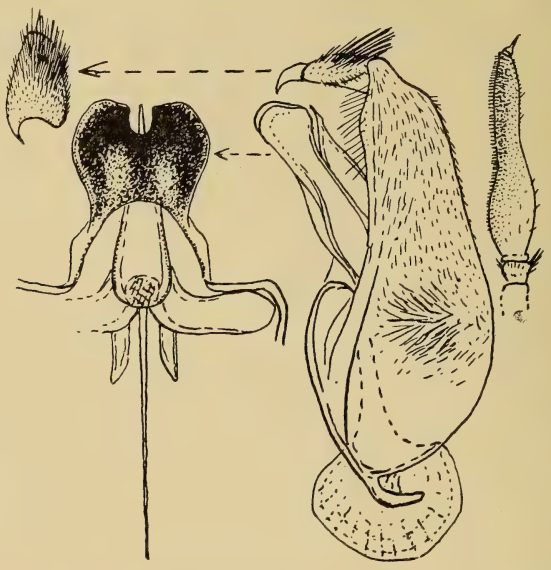
This species is definitely hydrelophilous, being apparently only found along streams of watercourses, settling on mossy banks, on mud or damp soil. All the specimens from Namaqualand were obtained along the course of a partially dried-up mountain stream.

A. anomala Wied.

(P. 349, Aussereurop. Zweifl. Ins., i, 1828; Loew, p. 191, Dipt. Faun. Südafr., i, 1860 as *Sobarus*; Macquart, p. 84, Dipt. Exot., ii, 1840 as *fuscipennis* and Bezzi, p. 75, Broteria (Ser. Zool.), vol. xx, Fasc. II, 1922.)

This species has been redescribed at length by Loew and is chiefly characterised by its brownishly infuscated wings the anterior darker part of which is well marked off from the posterior, more translucent part, the front half being also more ochreous brown in certain lights, with 5 distinct spots or infuscations on cross veins (on apical cross veins of first and second basal cells, on apical cross veins of enclosed

third submarginal cell, on apical cross vein of discoidal cell and at base of vein separating discoidal and third posterior cells); antennae with joint 3 (text-fig. 202, *b* of ♀) covered with a dense coat of short, erect, spinule-like pubescence below, giving it a whitish or silvery appearance in certain lights (a specific character not mentioned by any of the authors); interocular space in ♂♂, at narrowest part, about as broad as broad front part of ocellar tubercle, a little less than 3 to a little more than 3 times as broad as tubercle in ♀♀; palps



(*a*) (*b*)

TEXT-FIG. 202.—(*a*) Ventral view of aedeagus and side view of hypopygium of ♂ *Adelidea anomala* Wied. (*b*) Antenna of ♀ of same species.

with the apical joints markedly elongate. *Legs* with from 1–3 spines on front femora below, 3–6 on middle ones below and about 7–10 spines on hind ones as well as a row of small spines on inner lower apical aspect of hind ones. *Hypopygium* of ♂ (text-fig. 202, *a*: lateral view, ventral view of aedeagal process and dorsal view of beaked apical joint) with the beaked apical joints scarcely flattened above, with their outer apical angle lobularly prominent and slightly bent downwards; ventral aedeagal process in form of a hollowed cup-like or hood-like structure, the thin ear-shaped sides divided in front into 2 lobes (the hollow nature of which is not very satisfactory shown in my sketch); lateral struts comparatively broad and shoe-horn shaped.

This species is also variable in the distinctiveness of the spots on the wings and in the colour of the pubescence; some ♀♀ with predominantly black bristles on abdomen. Like *immaculata* Bezz. it seems to frequent watercourses in shady places.

Locality.—W. Cape Province and S.W. Cape Province. (In the Imperial Institute, Transvaal, British and South African Museums.)

According to Schiner, Loew, Becker and Bezzi (*see* Bezzi, p. 470, Ann. S. Afr. Mus., vol. xviii, and also pp. 100, 101 and 136, The Bombyliidae of The Ethiopian Region, 1924), *Cyllenia longirostris* Wied. (p. 358, Aussereurop. Zweifl. Ins., i, 1828) is identical with *anomala*. This contention is extremely doubtful, for Wiedemann had already described the ♀ of *anomala* very satisfactorily (p. 349, loc. cit.). Moreover, according to Wiedemann's description of the ♀-*Cyllenia longirostris*, it differs from the ♀ of *anomala* in having an obviously 3-jointed palp, white hair on the head, a fringe (or hind margin) across hind margins of abdominal segments of snow white hair and whitish halteres with large brownish knobs, etc. Both Loew and Bezzi were unacquainted with the ♀ of *anomala*, which Bezzi (p. 470, Ann. S. Afr. Mus., vol. xviii) even suspected to be the same as *ruficornis* Bezz. (*see* under *ruficornis* on p. 470, loc. cit.).

12 ♂♂ 5 ♀♀ *A. anomala* var. *fuligineipennis* n.

These specimens form a distinct variety in that the wings, on the whole, are distinctly tinged darker, more cinereous or smoky to very dark, with the anterior darker part also much darker than in the typical form, being very dark brown, almost blackish brown, with only the dark infuscations on apical cross veins of first and second basal cells distinct, but also less spot-like and with the infuscation at base of vein separating discoidal and third posterior cells also distinct, but the other infuscations absent or only very faintly or scarcely indicated; legs with the front and middle femora distinctly blackened in basal halves or at bases in ♂♂ and with the hind ones extensively, or almost entirely, blackened above and along sides in ♂♂; pubescence with the bristly hairs on antennal joints 1 and 2, in both sexes, entirely or predominantly black, with more numerous and more conspicuous intermixed dark or blackish bristly hairs on thorax above in ♀♀ at least and also with more numerous and more conspicuous dark or black bristles on abdomen above in ♀♀.

Types in the South African Museum.

Locality.—Western Cape Province: Ceres Distr.; Michell's Pass (Versfeld and Hesse, Oct. 1934).

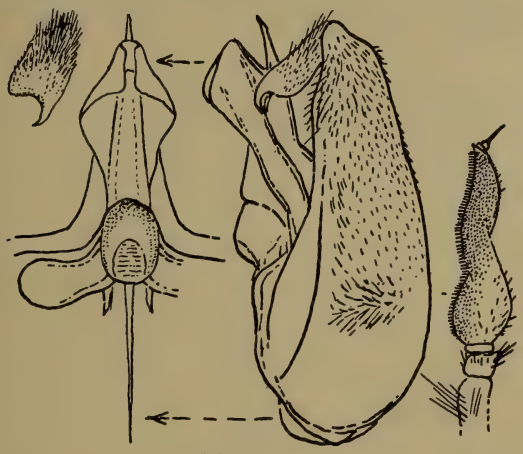
A ♂-specimen, from Namaqualand in the Transvaal Museum, seems to represent even another variety, differing from the typical form in having the infuscations on the cross veins also very indistinct or faint, with the infuscation in marginal cell almost occupying the entire apical part and with the hind tarsi less darkened or blackened above than in *anomala* s. str.

2 ♂♂ 3 ♀♀ *A. maculata* n. sp.

Compared with *anomala* Wied., which it resembles very closely, it has the following differences:—

Pubescence with the fine, depressed, brassy scaling on occiput and front part of thorax paler, more brassy and less golden, slightly shorter, distinctly less dense and even finer, with the erect hairs on occiput also slightly paler, with the depressed pubescence or scaling on sides of thorax in front and above wings and along a central line anteriorly more whitish, even silvery at least in ♀♀, with the stiff, erect hairs on sides of first abdominal segment and the fringe-like pubescent ones across hind border of segment 1 paler, tending to be more whitish and even silvery whitish in ♀♀; anterior angle of pronotum on each side and part of propleurae above first coxae and below front spiracle tending to be distinctly reddish, especially in ♀♀, the former also with a patch of reddish brown or pale yellowish brown bristly hairs; bristly hairs on ocellar tubercle, sides of frons and on antennae above in ♀♀ predominantly or entirely pale brownish or bronzy yellowish and not blackish brown or black; wings with the darker infuscated front part slightly darker and duller brownish, without a very distinct ochreous brownish tint, the infuscation also occupying the entire apical part of marginal cell, with the upwardly directed apical part of second longitudinal vein distinctly more sharply curved up at right angles, with the 5 spots on cross veins distinctly and conspicuously much larger, broader and more rounded; interocular space in ♂♂, at narrowest part, also comparatively narrower, about as broad as narrow front part of tubercle; antennae with joint 1 often with a slight rufous infusion, with joint 3 (text-fig. 203, *b* of ♀) distinctly more rapidly broadened into a much broader basal part, especially in ♀♀, the inner apical angle also more distinctly angularly prominent and the dense coat of spinule-like hairs below also more obvious. *Legs* with only 1 spine (none in ♂-holotype) on

front femora below, with 1–2 spines on middle ones and with about 7–9 spines on hind femora on outer aspect below. *Hypopygium* of ♂ (text-fig. 203, *a*: lateral view, ventral view of aedeagus and dorsal view of left beaked apical joint) differs from that of *anomala* (cf. text-fig. 202, *a*) in having no distinct lobe-like process at base of basal parts and also finer and less pubescent hairs above; beaked apical joints slightly longer and with the outer apical angle even more



Text-fig. 203.—(*a*) Dorsal view of left beaked apical joint, ventral view of aedeagal complex, and side view of hypopygium of ♂ *Adelidea maculata* n. sp. (*b*) Antenna of ♀ of same species.

directed downwards and with apparently shorter hairs above; aedeagus slightly longer, projecting more forwards and distinctly visible apically from below; ventral aedeagal process narrower, more cowl-shaped apically, the thin sides being more curled over.

Holotype in the Transvaal Museum, allotype in the South African Museum and paratypes in the Imperial Institute.

Length of body: about 6½–9 mm.

Length of wing: about 8–11 mm.

Locality.—S.E. Cape Province: Calitzdorp (Matjiesvlei) (Brauns, 1/10/21) (Holotype); Uniondale Distr.: Langkloof (Brauns, 1/10/22) (Allotype). S.E. Karoo: Willowmore (Brauns, 20/8/18); Oudtshoorn Distr. (nr. Cango Caves) (Ogilvie, 1/11/31).

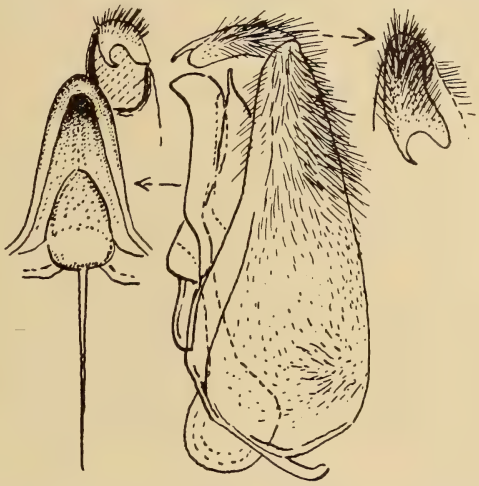
1 ♂ 8 ♀♀ *A. ruficornis* Bezz.

(P. 75, Broteria (Ser. Zool.), vol. xx, Fasc. II, 1922, and p. 470, Ann. S. Afr. Mus., vol. xviii, 1921.)

Except for a few lines in his key and a note on p. 75 (loc. cit.) Bezzi made no reference to this species in his monograph on the Ethiopian Bombyliidae in 1924, but described it in an appendix (p. 470, loc. cit.) to his paper on the Bombyliidae in the South African Museum. Below is appended a redescription based on material before me:—

Body black, with the first and second antennal joints, front part of frons, the face and genae, basal joints of palps, proboscis below (especially towards base), anterior part of pronotum on each side, propleurae above front coxae, pleurae to a great extent, sides of first abdominal segment, lateral part of segment 2, the hind margins and very broadly on sides of 3 and 4, especially in some ♀♀, sides very broadly of 5, entire 6 and 7 (in ♀♀) and venter, pale yellowish red or reddish; coxae and legs pale ochreous yellow, the femora slightly more pale reddish yellow and last tarsal joint blackish brown; pubescence above with the fine depressed scaling brassy to golden yellowish, with the bristly hairs on ocellar tubercle more brownish to blackish, those on sides of frons more yellowish and often with more brownish intermixed ones, those on occiput yellow when viewed from side and slightly paler from in front, those on antennal joint 1 and on face pale yellowish, with the shortish erect hairs on thorax composed of yellowish ones with intermixed darker and more brownish ones anteriorly and antero-laterally, those on sides of first abdominal segment very pale yellowish to almost whitish, the bristles in front of wings yellowish to reddish, with some distinctly blackish ones towards dorsum, the macrochaetae yellowish to reddish, with the bristles on posterior calli and hind border of scutellum dark brownish to blackish brown or black but often with some intermixed paler ones, reddish in ♂, with the transverse rows of bristles across hind margins of abdominal segments above comparatively stout and very dark blackish brown or black in both sexes, apparently without any reddish or yellowish ones and also with some black transverse ones on penultimate ventral segment and on one before it, with the pubescence on head below and rest of body below whitish, sericeous whitish hair even extending up to sides in front of wings and also on sides of abdomen especially in basal half, with the hair towards apex of venter becoming slightly more straw-coloured yellowish to yellowish;

wings infuscated brownish to reddish brown or ochreous brownish and practically uniformly so, the front half scarcely or only very slightly darker, showing a more ochreous tint in costal cell, basal two-thirds of marginal cell, first basal cell and to a certain extent at base of second basal cell, with the extreme base of wing distinctly paler yellowish, with the veins brownish, becoming more yellowish or reddish basally and along first and second longitudinal veins, with a darker spot-like infuscation at fork of second longitudinal vein and



Text-fig. 204.—Ventral view of aedeagal complex, side view of hypopygium, and views of beaked apical joint of ♂ *Adelidea ruficornis* Bezz.

3 more distinct spots on apical cross veins of first and second basal cells and enclosed submarginal cell respectively as well as a faint one on apical cross vein of discoidal cell and at base of third posterior cell, with the opaquely pale yellowish brown squamae almost white-fringed; halteres yellowish, with almost white knobs. *Head* with the interocular space in ♂ about as broad as tubercle, in ♀♀ on vertex about or nearly 3 times as broad as tubercle; antennae with joint 3 less than 1½ times as long as 1 and 2 combined, covered with a dense coat of very fine and short, spinule-like, whitish pubescence on lower parts, slightly curving downwards, broadest just before base, then gradually narrowed apically, but the extreme apical part slightly more slender, with the first terminal joint distinct but small and scarcely narrower than the apex of 3, with the second terminal joint scarcely separately visible, fused with basal thickening of spine-like, upwardly directed style; proboscis about 3–3½ mm. long; palps

with apical joints much shorter than in *anomala*. *Wings* with the discoidal cell tending to be narrow and apical part of first posterior cell to be more narrowed than in other species, *Legs* with 1–2 spines on front femora below, 2–6 (6 on one leg of one specimen) on middle ones and about 8–12 spines on hind ones of which 2–3 are situated in a second row more laterally near apex, with apparently no visible row of spines on inner lower apical aspect. *Hypopygium* of ♂ (text-fig. 204) with dense and conspicuous hairs on dorsum of basal parts in neck region; beaked apical joints with the outer apical part very prominently lobe-like; aedeagus with a hood-like or cowl-like process below.

Length of body: about 6–8 mm.

Length of wing: about 7–8½ mm.

Locality.—S. Karoo: Worcester (Turner, Sept.–Oct. 1931) (British Museum). S.E. Karoo: Willowmore (Brauns, 15/11/12) (one ♀ of which was labelled as *ruficornis*, Transvaal Museum). Central Karoo: Murraysburg Distr. (Mus. Staff, Nov. 1935); Aberdeen (Mus. Staff, Nov. 1935).

Owing to its extensively reddened abdomen, in ♀ at least, red venter, reddish pleurae, almost uniformly infuscated wings, distinct transverse rows of black bristles on the abdomen, and the distinct long lobe to beaked apical joints in ♂, this species cannot be confused with others in this genus.

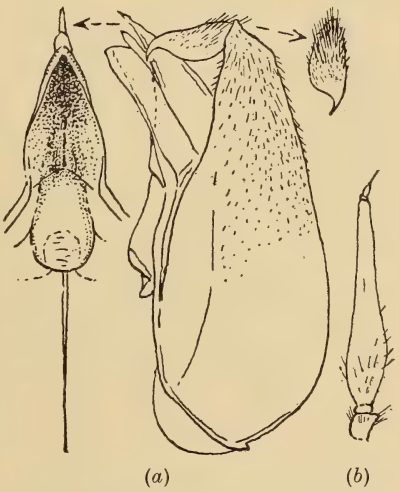
1 ♂ 2 ♀♀ *A. braunsii* Bezz.

(P. 75, Broteria (Ser. Zool.), vol. xx, Fasc. II, 1922, and p. 472, Ann. S. Afr. Mus., vol. xviii, 1921.)

Two ♀♀ presented to the South African Museum some years ago by the late Dr. Brauns and labelled by him as "*Adelidea braunsii* Bezz." comprise, without doubt, part of the catch from "Willowmore, 10 Apr. 1920" to which the two ♀♀, given to Bezzi, belong. The former 2 ♀♀ also agree with the description given by Bezzi on p. 472 (loc. cit.). In addition to these ♀♀ there is also a ♂ in the collections of the Transvaal Museum, also from the same locality. As this species is very distinct from the other forms, a more detailed description of both ♂ and ♀♀ is necessary.

Body with the integument entirely dark blackish brown, the pleurae having a slightly more brownish infusion; legs pale ochreous yellowish, with the coxae for the greater part very dark brownish, with the bases of the front femora and often also the base of the

middle ones in ♀♀ and all the femora, to beyond middle, in ♂, very dark brownish or blackish brown, also greater part of tarsi dark brownish or blackish brown, only the basal joints of tarsi being more yellowish; pubescence with the fine, short, depressed scaling above sericeous yellowish to pale brassy yellowish, the erect, bristly hairs on occiput yellowish when viewed from side, slightly paler in ♂, that on ocellar tubercle, sides of frons and some on antennal joint 1 above dark blackish brown, the sparse hairs on face and genae yellowish but a few intermixed ones on genae, in ♂ especially, also blackish, with the sparse hairs on thorax, bristles on posterior calli, on scutellum and the slender transverse bristles on abdomen above as well as more conspicuous pubescent hairs on sides of abdomen in ♂ and also on venter very dark blackish brown to black, with some of the intermixed ones on scutellum, however, almost yellowish, with the bristly hairs and macrochaetae in front of wings more yellowish brown, especially in ♀♀, the pubescence on body below straw-coloured yellowish, that on sides of first abdominal segment paler and almost whitish; wings comparatively broader and shorter than in other species, with a uniform, dull, comparatively dark, brownish infuscation, not distinctly darker on front part, only darker along course of brown veins, especially in ♀♀, thus showing up the veins as being much darker, without any black spots on the cross veins, but a conspicuous subopaquely whitish spot near apex of second basal cell, with the apical part of marginal cell markedly and roundly dilated, the apical part of second longitudinal vein being semicircularly curved upwards, with the discal cross vein only a little beyond middle of discoidal cell or at least at apical third of cell, with the opaquely brownish squamae with whitish fringes; halteres very pale yellowish white, their knobs white. *Head* with the interocular space in ♂, at narrowest part, comparatively narrow, only about as broad as comparatively narrow front part of



Text-fig. 205.—(*a*) Ventral view of aedeagal complex, side view of hypopygium, and dorsal view of left beaked apical joint of ♂ *Adelidea braunsii* Bezz. (*b*) Antenna of ♀ of same species.

tubercle or scarcely broader than front ocellus, not quite 3 times as broad as tubercle on vertex in ♀♀; antennae with joint 3 (text-fig. 205, *b* of ♀) slightly less than 1½ times as long as 1 and 2 combined, without a distinctly visible coat of fine, conspicuous, spinule-like pubescence below, only some scattered fine hairs being present towards base, almost club-shaped, rather rapidly broadened just before base, the apical part, however, not very slender, with the first terminal joint not very distinct and apparently continuous with the other terminal joints; proboscis about 2–2½ mm.; palps with the apical joint elongate. *Legs* without any visible spines on front femora below, with about 1 spine and often 2 small spinelets on anterior apical aspect of middle femora, with only 3 or 4 spines in apical aspect on hind ones below, one spine of which is usually situated laterally, with minute scattered blackish hairs in addition to the much denser pale sericeous to yellowish white scaling on the femora and tibiae; tibiae with the spicules on front ones markedly feebler and less developed than on middle ones. *Hypopygium* of ♂ (text-fig. 205, *a*: lateral view, ventral view of aedeagal process and dorsal view of left beaked apical joint) with the outer apical angle of beaked apical joints not or scarcely prominent and not angularly produced, with the outer apical angle of basal parts more angularly prominent than in other species; aedeagus projecting apically and visible from below the ventral aedeagal process, which is hood-like or cowl-like as shown in figure.

Length of body: about 5–5½ mm.

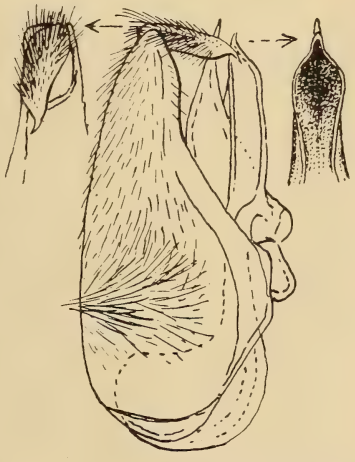
Length of wing: about 6–7 mm.

Locality.—S.E. Karoo: Willowmore (Brauns, April 1920).

12 ♂♂ 1 ♀ *A. pterosticta* n. sp.

This species very closely resembles *braunsii*, but may at once be distinguished from the latter by the distinctly very much darker blackish brown or lamp black wings, the dark colour appearing almost black along veins when the wings are viewed in certain lights, with an almost transparent or translucent spot or area in the middle of all the cells excepting the costal, first basal and to a certain extent axillary cells, thus giving the wing a distinct spotted appearance, with the discal cross vein just beyond middle of discoidal cell; legs with the femora also darkened to middle or beyond middle and especially hind ones below in ♂♂ and only at extreme bases in ♀, the rest slightly duller, less ochreous yellow and often more brownish

yellow, often with a spine on front femora below, with about 1–2 spines on middle ones below and about 6–8, larger and smaller, spines on hind femora below, beginning from before middle to apex of which 1 or 2 apically are on the outer side; pubescence with the depressed pubescence on body above slightly paler, less ochreous yellowish and more whitish or pale sericeous yellowish, with the bristly hairs on head, in the single ♀, more yellowish, that on face and genae in both sexes more distinctly dark or blackish, the macrochaetae in front of wings in both sexes also reddish brown, the rest of the bristly hairs on thorax and scutellum and the transverse bristles on abdomen black as in *braunsii*, that on abdomen in ♂♂, especially on the sides also denser and with intermixed longish, pale or whitish ones, that on body below, on the whole, paler and more whitish. *Head* with the interocular space in ♂♂ distinctly broader, very much broader than front ocellus, about as broad as broad front part of tubercle or the tubercle itself, also much broader in ♀, even more than 3 times as broad as tubercle, with the transverse depression on frons anteriorly in ♀ slightly more evident, with the first terminal joint to antennal joint 3 distinctly more developed and more visible, with the palps distinctly longer, slender, more conspicuous and projecting, quite as long as, or even longer than, the antennae, the apical joints being also distinctly longer and often nearly or even as long as antennal joint 3, with the proboscis, on the whole, slightly longer, about $2\frac{1}{2}$–$3\frac{1}{2}$ mm. long. *Hypopygium* of ♂ (text-fig. 206) also resembles that of *braunsii* (cf. text-fig. 205, *a*) but with more numerous, denser and longer hairs on basal parts and on beaked apical joints; beaked apical joints, shown to left, slightly different in shape; aedeagus also with a hood-like or cowl-like ventral process, hollowed out below (*see* figure to right); lateral struts broad, short and strap-like.



Text-fig. 206.—Side view of hypopygium, dorsal view of beaked apical joint, and ventral view of aedeagal process of ♂ *Adelidea pterosticta* n. sp.

Types in the British Museum.

Length of body: about 5–7 mm.
Length of wing: about 6–7½ mm.
Locality.—S. Cape Province: Mossel Bay (Turner, 15/3–20/4/1932).

Gen. *Sosiomyia* Bezz.

(P. 67, Ann. S. Afr. Mus., vol. xviii, 1921.)

This genus was based by Bezzi on a ♂ and ♀ from Stellenbosch in the Western Cape Province. Another ♂ without a locality-label, but presumably belonging to the same catch from Stellenbosch, was labelled by Bigot as "*Platamodes longirostris* Big.". There is, however, no reference in literature that Bigot ever described this insect. These insects rightly belong to a new Ethiopian genus, as was maintained by Bezzi, and Bigot's allocation of it to the Neotropical genus *Platamodes* Lw. (Loew, Neue Beitr., iii, 40, v, 1855) is scarcely tenable. According to Becker's key and synopsis (p. 438 and p. 479, Ann. Mus. Zool. St. Petersb., xvii, Nos. 3–4, 1912), *Platamodes* Lw. is nearest to the Palaearctic *Conophorus* Meig. and has no spines on the hind femora below. Not having examined this Chilean genus, I am unable to state whether this South African Bombyliid, also occurring along semi-dry and arid coastal parts (West Cape Province to Namaqualand), is congeneric with *Platamodes*.

The generic characters, distinguishing this genus from *Adelidea* and other *Bombyliinae*, have been described at length by Bezzi. The chief and outstanding generic characters are the peculiar shape of the third antennal joints (text-fig. 207, *b* of ♂ and 207, *c* of ♀) which are very broad and laterally compressed basally, bellows-shaped from side in ♀♀ and which, in both sexes, are also different from other Bombyliines in having obvious, pubescent hairs and very long and conspicuous bristles or bristly hairs basally above and apically below, the presence of 3 submarginal cells on wing, the presence of more visible pubescent hairs above at base of wing, the very feeble, sparse, fine and almost absent fringe on alula, the dull bluish grey to dull mauvish grey bloom on body above, the somewhat sparse, erect hairs, apart from the bristles, on body above, the presence of golden to reddish, red or orange red, depressed scaling above, the entirely bare metapleurae, etc. From *Adelidea*, which it closely resembles, it may at once be distinguished by the shape and nature of the third antennal joints, the distinctly incrassate first antennal joints, the pubescent nature of base of wings above, the very sparse or obsolescent fringe on alula, much longer and denser hairs and bristly hairs on face,

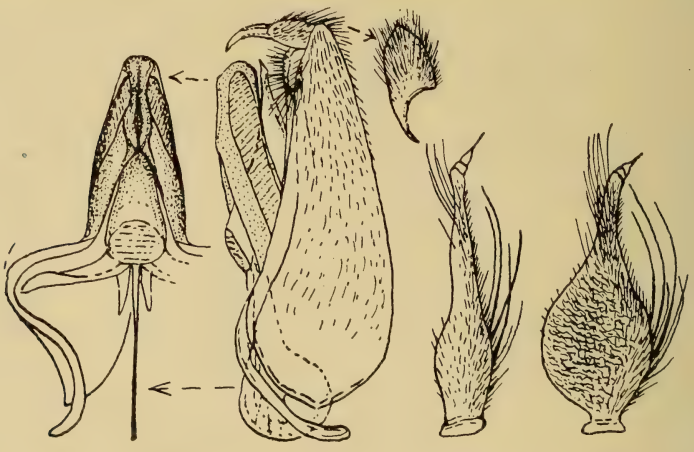
genae and head below and the more distinct, transverse depression on frons in ♀♀ just behind antennae. The *hypopygium* of the ♂ (text-fig. 207, *a*) has the outer apical angle of beaked apical joints also angularly prominent, the aedeagus is also comparatively short and blunt and hidden from below by a rather tumid and blunt ventral aedeagal process. The genus is at present monotypic and represented only by one species fully described by Bezzi.

S. carnata Bezz.

(P. 69, loc. cit., and Pl. I, figs. 12 and 12, *a*, and also referred to as *comata*, p. 470, Ann. S. Afr. Mus., vol. xviii.)

The following comments are, however, necessary:—The facets of the eyes in the ♂♂ are not of equal size, those on upper part being slightly coarser; antennae not entirely black, joints 1 and 2 often with a more brownish, even slightly reddish brown tint in some specimens; proboscis also with the labral part more brownish to reddish brown and not entirely black; palps obviously 2-jointed; face with the longish hairs in front distinctly more bristly, especially in ♂♂; antennae with joint 3 as shown in text-fig. 207, *b* of ♂ and 207, *c* of ♀, with the greater part of base in ♀♀ laterally much compressed, markedly pyriform or bellows-shaped and transversely roughened or wrinkled and scabrous, with fine pubescence in addition to the long bristly hairs in both sexes, with the first terminal joint separately visible, the second, however, not distinctly separately visible but continuous with the dilated and thickened basal part of slender terminal style and these joints slightly more developed in ♂♂; frons in ♀♀ with a distinct, though faint, transverse depression just behind antennae; thorax and abdomen above with dull slaty grey, slaty bluish, dull bluish grey to dull mauvish grey bloom and with deep golden, golden reddish, orange red, brownish red to striking, deep, metallic red, depressed scaling; abdomen with the short, sparse, finer and erect hairs as well as the long, stouter, transverse bristles across hind margins on disc yellowish, reddish yellow to reddish, with the denser pubescent hairs on sides white, intermixed with yellowish ones and also with denser, often slightly longer, black, bristly hairs and bristles laterally, even on segment 1; legs with or without 1 spine on front femora below, with 2–4 on middle ones and about 5–8 on hind femora below, 2 or 3 of which are usually found laterally in a second row apically, without any distinct row of spines on inner apical aspect below, with the spicules on front and middle

tibiae usually entirely yellowish to pale brownish yellow in both sexes and when darker, as in ♂-type, they are not black but more reddish to brownish. *Hypopygium* of ♂ (text-fig. 207, *a*: lateral view, ventral view of aedeagal process and dorsal view of beaked apical joint) with the posterior part of basal parts produced into a long, lobe-like or finger-like process and with the inner apical part of neck region below also provided with longish bristly hairs; beaked apical joints dorso-ventrally compressed, not depressed above, slightly hollowed



TEXT-FIG. 207.—(*a*) Ventral view of aedeagal structures and side view of hypopygium of ♂ *Sosiomyia carnata* Bezz. (*b*) Third antennal joint of ♂, and (*c*) of ♀ of the same species.

out below, with the outer apical angle prominent and slightly curled downwards, the beak long and the dorsum provided with fine, but longish, backwardly directed hairs; aedeagus short and hidden by the somewhat tubular, tumid and blunt, ventral, aedeagal process, the sides of which are more membranous; basal strut racket-shaped.

Length of body: 5–9 mm.

Length of wing: 6–11 mm.

Locality.—W. Cape Province, Olifant's River Valley and Namaqualand. (Transvaal and South African Museums.)

The species seems to be slightly variable in size, colour of bloom and depressed pubescence on body above and, to a certain extent, in the infuscation and spots on the wings. The Namaqualand specimens appear to be slightly darker, with the bristles and hairs on body above apparently more golden yellowish in macroscopic effects, with the depressed pubescence more distinctly golden and with the wings

tinged slightly darker, the front and basal parts being slightly darker reddish brown. Specimens from the Olifant's River Valley are entirely darker above, due to a dull, deep, mauvish grey bloom and characteristic, deep, orange reddish to deep, metallic red, depressed pubescence, even more reddish than in the typical forms from the Western Province, with darker infuscated front part of wings, which is duller and slightly more blackish brown than in the typical and Namaqualand forms.

Gen. *Conophorina* Beck.

(Becker, p. 181, Entom. Mitteil., ix, 1920; Bezzi, p. 76, Broteria (Ser. Zool.), vol. xx, Fasc. II, 1922.)

This genus was described by Becker from a single ♀-specimen forwarded by the late Dr. Brauns and collected by him at Willowmore. Another ♀ from Oudtshoorn and also collected by Brauns was presented to the South African Museum some time ago and was labelled as "*Conophorina bicellaris* Beck." by Dr. Brauns. Becker referred this genus to the *Conophorinae*, a subfamily which appears to be only represented in the Palaearctic, North American and Neotropical regions. Moreover, he placed it next to the Palaearctic genera *Codionus* Rond. and *Conophorus* Meig. If Becker's subfamily be accepted then *Conophorina* appears to be the only known representative of the *Conophorinae* in Africa. Bezzi, however, maintained that the *Conophorinae* cannot be separated from the *Bombyliinae* and, in his paper in Broteria, appends *Conophorina* on to his list of Bombyliine-genera. With the exception of the comparatively long antennae and very incrassate first and second antennal joints, all its other generic and specific characters are also found in other genera and species of the *Bombyliinae*. Like Bezzi, I prefer to retain this genus in the subfamily *Bombyliinae*.

Its outstanding characters are the somewhat tumid and elevated vertex on head in ♀♀, the elongate antennae (cf. text-fig. 2, p. 182, Becker, loc. cit.) of which joints 1 and 2 are markedly incrassate, joint 2 especially being relatively longer, more incrassate and barrel-shaped than in any other Bombyliine-genus, both joints are also covered with conspicuous bristly hairs, very long and dense on joint 1 below, with joint 3 covered with a dense coat of whitish, spinule-like pubescence below in addition to more scattered pubescent hairs above and below (as in *Adelidea*), with the terminal joints together comparatively elongate; proboscis short and stoutish; palps com-

paratively elongate, apparently 3-jointed, the third or apical joint not always separately visible; thorax and abdomen above sparsely-haired, but with fairly dense depressed golden pubescence or scaling as in *Adelidea* and *Sosiomyia*; body below also sparsely-haired and the metapleurae entirely bare. *Wings* without a basal comb, with very much reduced or vestigial alula, with open first posterior and anal cells and with only 2 submarginal cells. *Legs* with only very slender, longish hairs, denser in ♂♂, and no distinct spines on femora below, with the spicules on front tibiae fewer and less developed than on middle ones, with the claws curved down apically and with the pulvilli well developed. *Hypopygium* of ♂ (text-fig. 208) with the basal parts not narrowed in neck region; beaked apical joints elongate and narrow; aedeagus with a ventral process below; lateral struts short.

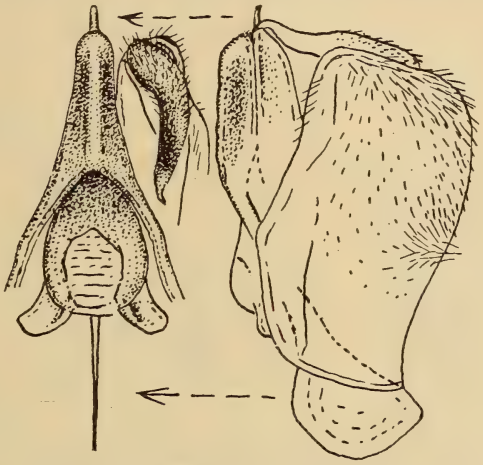
4 ♂♂ 5 ♀♀ *C. bicellaris* Beck.

Only one species of this genus is known and was described by Becker on p. 183 (loc. cit.). In addition to Becker's description of the ♀-type, the following comments are appended for ♀♀ in general and the ♂♂:—

Antennal joints 1 and 2, pleurae to a certain extent and to a certain extent also the legs are more dark blackish brown than black in some specimens at least; antennae with the first terminal joint, at apex of joint 3, small, the second one comparatively elongate and almost imperceptibly passing into the spine-like style, with the bristly hairs on first and second antennal joints pale brownish yellow and with a golden sheen; proboscis about 1½ mm. long, often subequal to length of antennae; palps with joints 1 and 2 elongate, joint 2 becoming broader, more strap-like and more laterally compressed towards apex, joint 3, when visible, short; wings (cf. Becker, p. 183, text-fig. 3, loc. cit.) distinctly, though faintly, tinged cinereous or greyish, iridescent, with the costal cell and base more subopaquely yellowish, with the veins brown to dark brownish and with the discal cross vein at about apical third of discoidal cell.

The undescribed ♂♂ differ from the ♀♀ in having the eyes in contact or contiguous above for a distance about as long as, or even slightly longer than, ocellar tubercle, with the upper facets of eyes distinctly coarser than lower ones, with the bristly hairs on occiput, tubercle, antennal joints 1 and 2 and face distinctly denser and longer, those on antennae below and on face especially being black and not brownish or yellowish as in ♀♀, only some intermixed ones on the joints above

and sides being brownish or yellowish golden, with the black bristly hairs on thorax, scutellum and abdomen above also denser and those on abdomen especially slightly longer, finer and denser than in ♀♀, with the yellowish and dark intermixed hairs on femora longer and more densely developed than in ♀♀ and also with slightly denser and longer brownish or yellowish golden gleaming hairs on sides of



Text-fig. 208.—Ventral view of aedeagal structure and dorsal view of left beaked apical joint and side view of entire hypopygium of ♂ *Conophorina bicellaris* Beck.

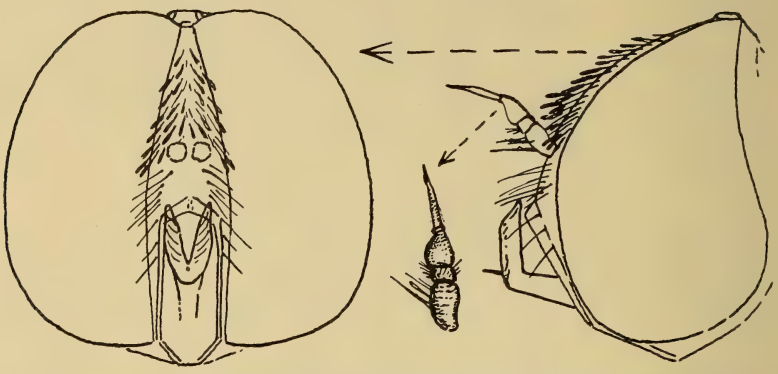
abdomen. *Hypopygium* (text-fig. 208) with short, fine and not very dense hairs on basal parts; beaked apical joints, shaped as shown in figure, with comparatively short and not very conspicuous hairs above; aedeagus projecting a little beyond closely adpressed, lobe-like, ventral process.

Locality.—Little Karoo and E. Karoo: Willowmore and Somerset East. (In Imperial Institute, British and South African Museums.)

Othniomyia n. gen.

Body somewhat laterally compressed, with the thorax slightly humped, the highest part nearer anterior margin. *Head* (text-fig. 209) closely adpressed to thorax, lower than thorax, deeper than broad, scarcely broader across eyes than thorax, with the front part from ocellar tubercle to head below almost a semicircle when viewed from side; occiput more or less flattened, not deeply concave below tubercle, with sparse and shortish hairs; ocellar tubercle tumidly

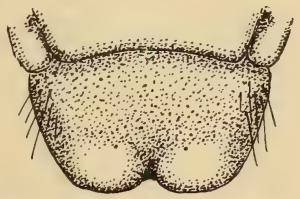
prominent; eyes with the hind margins not deeply or truly emarginate, occupying most of the head in ♂ at least, narrowly separated above, with the upper facets not coarser than lower ones in the ♂; frons narrow and elongate, the distance from ocellar tubercle to bases of antennae much greater than distance from antennae to edge of buccal rim, with the surface slightly convex, without a central furrow and with sparse pubescence, with the inner margins of eyes gradually diverging to level of buccal rim, then subparallel; face not more



TEXT-FIG. 209.—Front and side views of head and enlarged antenna of ♂ *Othniomyia tylopelta* n. gen. and n. sp.

prominent than frons, comparatively narrow, only slightly convex medially, forming a continuous arc with frons when viewed from side, with some bristles laterally, otherwise smooth; genae very narrow, almost obliterated lower down, and with only a very few bristles along their upper parts; buccal cavity elongate, occupying most of the lower front part of head, its edge very distinct and rim-like, slightly more prominent above where it is separated from inner margins of eyes by a narrow furrow-like depression; antennae (text-fig. 209) with the first joints contiguous basally, very short and slightly thickened, with a few stoutish bristles below, with joint 2 short and also bearing some bristles, with joint 3 (excluding terminal elements) remarkably short, conical and broadest towards base, with the first terminal joint remarkably long and slender, rod-like, much longer than the third antennal joint itself, the rest of the terminal joints not separately visible, only a small style being visible at end of long first terminal joint; proboscis very short, with the labella, relative to proboscis, elongate and well developed; palps very small and short, confined to extreme base of proboscis; head

below very narrow in front and scarcely broader than across upper part of buccal cavity and with short and sparse hairs. *Thorax* compressed laterally, more or less arched above, the pleural parts perpendicular, with the space between humeral callus and base of wing on each side and separating the dorsal part from mesopleural sclerite, deep and groove-like, with the pronotal part well developed, with the transverse suture, visible laterally between it and mesonotum, well back and near base of wings, with the upper surface of thorax anteriorly and laterally with comparatively sparse bristly hairs and scaling; scutellum distinctly lower than base of thorax, its posterior margin indented medially, the posterior margin of scutellum thus bifid (text-fig. 210), the indentation separating two tumid prominences, with the upper surface of scutellum bearing some sparse bristles laterally on each side and scaling discally in basal half; pleurae well developed, with the mesopleural sclerite prominently developed, convex and situated rather far forwards, with the sternopleuron also broad and well developed and with the pteropleuron situated more forwards and not directly under wing-bases as in many genera, with the pleurae comparatively bare, very sparsely-scaled, bristly hairs on bristles being present only on mesopleuron, with the metapleural parts bare, but with bristles on metapleuron in front of halteres. *Wings* (text-fig. 211) with the costal margin undulating, the costal cell being broadened just beyond middle, with 3 submarginal cells and 4 posterior cells present, with the first posterior cell broadly open on hind border, with the enclosed third submarginal cell very large and broad and the marginal cell much broadened in apical part, with the second longitudinal vein very sinuous, curved forwardly along its course and very rapidly bent upwards at right angles to costal margin, with the first basal cell remarkably narrow, the anal cell very broadly open on hind border, with the alula distinctly developed and lobe-like, fringed with shortish hairs, with the squamae almost bilobate, the lower lobe also well developed, with the basal comb poorly developed and the basal tooth at base of wings well developed, broad, triangular and bluntly pointed apically; halteres with the knobs oval, spoon-shaped, convex above and somewhat depressed or hollowed below. *Abdomen* with flattened, narrow scaling, scale-like hairs and sparse pubescence, mostly in form of



Text-fig. 210. — Scutellum of *Othniomyia tylopelta* n. gen. and n. sp.

shortish transverse bristles across hind margins of the segments above and hairs on venter below. *Legs* with short bristly hairs on front and middle femora below and sparse, but longer and finer, hairs on hind ones below, becoming more spine-like towards apex and with scales on all the femora; tibiae with about 3 rows of poorly developed spicules on front ones and with 4 rows of more strongly developed ones on middle and hind tibiae, with the apical spurs straight and well developed on middle and hind tibiae; last tarsal joints without distinct or longish apical hairs; claws curved downwards apically and the pulvilli well developed. *Hypopygium* (text-fig. 212) with the beaked apical joints elongate, broadish, hollowed out below, convex above and not depressed; aedeagus without any ventral processes, its main body at middle produced into a basally directed process on each side, dorsal to the medial aedeagal apparatus.

The ♀ of this genus is unknown. This genus can easily be distinguished from all other genera in the *Bombyliidae* with non-emarginate eyes, by its bifid scutellum, peculiar wing-venation and peculiar antennae. There is no other Ethiopian genus which is closely allied to it. The American genera *Lordotus* Lw. (p. 303, Berl. Ent. Zeit., vii, 1863) and *Geminaria* Coq. (p. 109, Trans. Amer. Ent. Soc. Phil., xxi, 1894) appear to have the same type of wing-venation. Moreover, *Geminaria* also has a sulcated scutellum. The antennae are, however, longer and the proboscis is also longer. Genotype is *O. tylopelta* n. sp.

1 ♂ *O. tylopelta* n. sp.

Body black; scutellum with the tumid tubercle-like prominence apically on each side brilliantly shining; antennal joint 3 and the long terminal joint and legs very dark reddish brown, almost black, with the tibiae and tarsi very slightly paler and more dark reddish brown; pubescence with the few fine bristly hairs on ocellar tubercle, the shortish bristles on antennae below and sides of face, the stoutish bristles on occiput, the slightly longer ones on anterior part of thorax, the few intermixed slender ones on disc, the slightly stouter ones on sides of thorax in front of wings, the few longer macrochaetal bristles, the bristles on mesopleuron, metapleuron and those on sides of scutellum, the shortish and sparse transverse ones across abdominal segments above and the bristly hairs on coxae black, with the scale-like hairs on frons whitish, the fine and very sparse ones on head below slightly straw-coloured yellowish and the fine slender ones on venter more whitish,

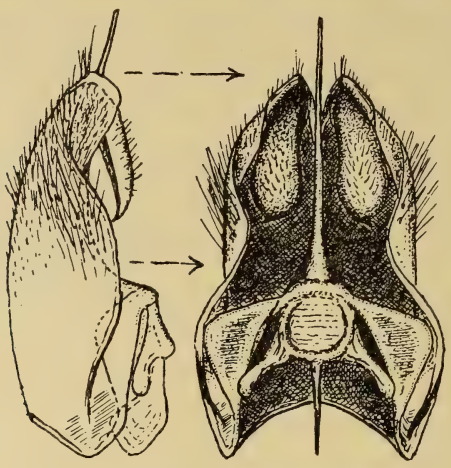
with somewhat sparse, white, hair-like scaling on occiput, front part of thorax, on sides in front of wings, across base of thorax, across base and sides of scutellum and in the posterior indentation of scutellum, with denser and slightly shorter, flattened, white scaling on abdomen above, more or less concentrated transversely across bases of segments, those on sides with longer white ones (like those on sides of thorax) and also blackish or dark ones nearer base, with the depressed scales on disc of abdomen also with more greyish or faintly yellowish or ochreous intermixed ones, with very sparse, pale or whitish scaling on pleural parts as well, with the scaling on femora



Text-fig. 211.—Wing of *Othniomyia tylopelta* n. gen. and n. sp.

(as far as these have not been denuded) predominantly blackish or graphite-like; wings (text-fig. 211) glassy hyaline, with the base, greater part of costal cell, more or less basal half of first basal cell and extreme bases of anal and axillary cells very dark blackish brown, with the veins dark brownish, becoming almost black towards base, the apical half of costal margin, however, yellowish, with the short discal cross vein a little beyond middle of discoidal cell, the basal comb black, with the squamae opaquely dirty whitish and fringed with frosty white scale-like hairs; halteres with yellowish basal halves and with the knobs very dark blackish brown above. *Head* (text-fig. 209) with the interocular space above in ♂ about as broad as tubercle; frons slightly depressed basally just in front of front ocellus; antennae with joint 1 only about 2 times, or scarcely more than 2 times, as long as joint 2, with joint 3 (excluding terminal elements) subequal to and not longer than joint 1; proboscis about 1 mm. long, the labella about half as long as entire proboscis. *Legs* without any distinct spines on femora below, but with the slender black bristly hairs on hind ones below ending apically in a few stouter and more spine-like bristles; pulvilli extending to beyond middle of

claws. *Hypopygium* (text-fig. 212) with some longer hairs in addition to the shortish ones towards apex and sides of basal parts, with the outer apical margin ledge-like prominent; beaked apical joints much hollowed out below, somewhat elongate and broad, convexly



TEXT-FIG. 212.—Side and ventral views of hypopygium of ♂ *Othniomyia tylopelta* n. gen. and n. sp.

rounded above and there provided with scattered shortish hairs, ending apically abruptly in a very insignificant, outwardly directed spine; aedeagus very slender, elongate and almost straight; ramus on each side, connecting central part of aedeagus to sides of basal part flattened as shown in figure; lateral struts shortish.

Genotype and type of species in the British Museum.

Length of body: about $5\frac{1}{2}$ mm.

Length of wing: about $5\frac{1}{2}$ mm.

Locality.—S. Karoo: Matjiesfontein (Turner, 22–23/10/1928).

Corsomyza-Group.

The genera *Corsomyza* Wied., *Callynthrophora* Schin., *Megapalpus* Macq. and *Hyperusia* Bezz. were placed in the Palaearctic subfamily *Usiinae* by Bezzi. As the Palaearctic genus *Usia* Latr. possesses certain distinct and peculiar characters (cf. Becker's monograph, pp. 193–227, Berl. Ent. Zeit. Band l., 1905), such as a reduced wing-venation in which only 3 posterior cells are present, a Phthiriine type of spined third antennal joints, the prolongation of sides of last sternite in ♂♂ to form a curved spine or hook on each side and an

entirely different type of hypopygium (cf. text-fig. 3), the above genera cannot be placed in the true *Usiinae*. As they differ in salient features from other *Bombyliidae* they constitute a separate and distinct group which may even be raised to the rank of a separate subfamily, but which is here provisionally referred to the *Bombyliinae*. The chief characters of this group are:—

Head usually very broad and sometimes remarkably broad, as broad as or broader than the thorax; eyes in ♂♂ usually broadly separated, dioptic, the space on vertex at least as broad as broad ocellar tubercle and sometimes very broad and ♀-like, very broadly separated in ♀♀; frons thus very broad, often remarkably broad, convex and tumid or inflated; facial region broad, sometimes also remarkably broad and inflated on each side of antennae, the face broad but often short and the upper parts of genae or sides of face usually remarkably broad and even tumid or inflated, with the inner margins of frons and facial region, especially in ♀♀, only gradually diverging anteriorly or are subparallel, the buccal region and head below very broad, the facial region sometimes with a characteristic, dense, circular facial brush of stiffish or bristly hairs, especially in ♂♂; antennae (*see* text-figures) with joint 3 usually clavate or dilated or thickened knob-like apically or broadened apically, the inner part of clavate or thickened apical part usually grooved or hollowed out and with the terminal elements much reduced; proboscis either remarkably short and confined to buccal cavity or moderatly long; palps usually well developed and sometimes elongate and conspicuous. *Wings* with the basal comb much reduced or even absent, with the costal cell usually slightly broadened medially, with 2 or 3 submarginal cells present, always with 4 posterior cells of which the first posterior cell is always open as in the *Doliogethes* and *Dischistus*-group but the anal cell is acute apically and provided with a short stalk, rarely open on hind border, with the alula always reduced to a variable extent, never very broadly lobate. *Abdomen* with the last sternite in ♂♂ notched or indented medially. *Legs* without any spines on femora below, but with longish, bristly hairs; tibiae with the spicules not very conspicuous, sometimes poorly developed, but the tibiae also with much hair, the hind ones sometimes even having a feathery appearance; tarsi usually not very long, with or without long bristly hairs apically on last joints, with the claws and pulvilli usually well developed and the empodium usually distinctly visible. *Pubescence* usually denser and longer in ♂♂, usually comparatively sparse and sometimes very sparse in ♀♀, the metapleurae and sometimes entire

pleurae bare, that on abodmen in ♂♂ sometimes very dense and erect, giving a bottle-brush appearance. *Hypopygium* of ♂♂ (text-figs. 214–217, 219–223, 227, 229–231, 233–237) very uniform throughout the genera and species; basal parts on each side basally usually with a secondary basal lobe; beaked apical joints usually characteristically somewhat laterally compressed, claw-shaped or hook-like; aedeagus more or less constantly shaped as shown in figures, the apex slightly curved upwards and the aedeagus without a ventral aedeagal process.

Gen. *Corsomyza* Wied.

(P. 13, Nov. Dipt. Gen., 1820, and p. 326, Aussereurop. Zweifl. Ins., i, 1828; Macquart, p. 108, Dipt. Exot., ii, 1840; Loew, p. 198, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 73, Ann. S. Afr. Mus., vol. xviii, 1921, and p. 103, The Bombyliidae of the Ethiopian Region, 1924.)

(Syn. = *Lasioprosopa* Macq. (p. 82, Dipt. Exot. Suppl., v, 1855); = *Mulio* Wied. in part nec Latreille (p. 12, 16, Zool. Mag., i, iii., 1819); = *Megapalpus* Bezz. nec Macquart (p. 85, Ann. S. Afr. Mus., vol. xviii, 1921).)

In the literature dealing with the species of this genus there is much confusion. Apart from the various different genera to which species have been referred, the authors have not always been sure about the sexes of the species they described and females have been described as males, the ♀ of *simplex* Wied. having even been described as *Megapalpus fulviceps* by Bezzi (p. 87, Ann. S. Afr. Mus., vol. xviii). Owing to the marked sexual dimorphism in this genus, it is not very easy to allocate the ♀♀ of some species to their respective ♂♂. To facilitate the identification of the various species, separate keys for the two sexes have been devised in this paper. The ♂♂ are, to a certain extent, easy enough to distinguish, but the ♀♀ of different species often resemble each other so closely that they are not so easily separated. The genus *Corsomyza* itself is often not very easily separated from the genera *Callynthrophora* Schin., *Gnumyia* Bezz., *Megapalpus* Macq. and *Hyperusia* Bezz. The chief characters which characterise the genus are the following:—

The presence of a relatively broad head, usually broader than the thorax, with the interocular space in ♂♂, at narrowest part, always slightly broader than the comparatively broad ocellar tubercle, usually very broad in ♀♀, with a somewhat shining frons and with the inner margins of eyes in both sexes rapidly diverging anteriorly,

never parallel, with the third antennal joints (cf. text-figs. 213, 215, *b*, 217–222 and 224–227) more commonly distinctly broadened or clavate apically or sometimes grooved on the inner side, especially towards the broadened apical part, with a characteristic facial brush in all ♂♂ and majority of ♀♀, usually bordered by dense black hairs on front part of frons, laterally on genae and often on head below, with the palps always comparatively long and visibly projecting beyond facial brush on each side of proboscis, and without distinctly separately visible joints, with the head below comparatively broad. *Thorax* and abdomen more or less densely pubescent in ♂♂, the pubescence shorter and sparser in ♀♀, that on abdomen discally often very sparse and short, with the propleurae, and especially the metapleurae, bare, but usually with a small, but conspicuous, tuft of hairs just below halteres and posterior to the last thoracic spiracles, with sparse but longish hairs on venter in ♂♂, that on ♀♀ with fewer hairs or almost bare; last sternite in ♂♂ deeply notched at middle apically. *Wings* usually with two submarginal cells, rarely with three, without a basal comb, with the costal cell usually slightly or much broadened at about the middle, with the discal cross vein always much beyond middle of discoidal cell, with the anal cell rarely opening on hind border, usually more or less acute apically, sessile or provided with a short stalk, with the first posterior cell very widely opening on hind border and with the alula much reduced, never broad or lobe-like, more often very narrow, linear or even vestigial. *Legs* with long, dense, and fine bushy hairs on the femora below, denser in ♂♂, without any spines, with longish hairs on middle and hind tibiae in majority of ♂♂, usually shorter and less dense, more bristly in ♀♀, with only 1 outer lower row of short separated spines on front tibiae, 1 or 2 rows on middle ones and usually 3 rows on hind ones, of which only those in outer lower row are distinctly spine-like, with the apical crown of spines on tibiae rarely long, usually very short, with the claws sickle-shaped, curved downwards apically, rarely only slightly curved, with the pulvilli usually well developed, extending to beyond middle of claws and with the empodium distinctly visible, with 3 long, apical, bristle-like hairs across apical margin of last tarsal joint, these rarely very short and inconspicuous. *Hypopygium* of known ♂♂ (text-figs. 214–217, 219–223 and 227, *a*) more or less very uniform throughout, scarcely any specific differences being present, the basal parts always with an extra lobe-like or flap-like part at base, with pubescence present on basal parts, that along lower outer parts in neck region and towards middle much longer

and usually more conspicuous; beaked apical joints claw-like in shape, laterally compressed, the apical part curved downwards and pointed in profile (cf. text-figures), appearing broader from in front, with the outer sides usually punctured, with a crest of hairs along outer upper part, longer towards base and often with a few longish ones in punctures along lower outer part as well; aedeagus shaped as shown in the figures, the apical lobe-like part slightly curved upwards and very uniform throughout the species, without a ventral process below at base; ramus on each side joining base of aedeagus on to sides of basal parts flattened, triangularly broadened, flange-like (cf. text-fig. 216, *b* and 216, *c*); dorsal aedeagal strut or process on each side on postero-dorsal aspect (cf. text-fig. 216, *b*) lobe-like but not prominently projecting on each side of basal strut; basal strut, side view, usually shaped as shown in figures.

Key to the South African species.

Known ♂♂.

1. (32) Wings with 2 submarginal cells; hairs on head below, pectoral, pleural and ventral regions, on coxae and femora usually not entirely snow white or pure white, dark or black hair being present on all or some of these sites or at least on propleurae, coxae and femora (when entirely whitish, wings at least with only 2 submarginal cells); facial brush, in the majority of species, ceasing on sides and not extending as dense erect hairs just behind antennae and, when extending right round, it is not very broad behind the antennae . . . . . 2.
2. (11) Wings more distinctly tinged subopaquely yellowish or yellowish to reddish brown throughout, becoming darker and more yellowish or reddish anteriorly and basally, with the alula, though small, comparatively well developed, not absent or very vestigial; antennal joint 3 comparatively long and thick, gradually broadened towards apex, not being very markedly broader there than basally, the basal half or two-thirds not being very slender, with a distinct groove on the inner side, either along its entire length or at least from about middle to apex; hind tibiae at least with long pubescence or more conspicuously feathery due to longer, denser and more numerous hairs; black or dark hairs on genae comparatively short, sparse, less developed and less conspicuous, even absent; facial brush extending round just behind antennae, the front part of frons thus also with dense and erect hairs . . . . . 3.
3. (4) Antennal joint 3 (text-fig. 213, *a*) comparatively long, broad, strap-like, almost equally broad throughout, only slightly more broadened apically and grooved on the inner side along its entire length; antennal joint 1 distinctly longer and 1 and 2 combined about equal to space between eyes on vertex; wings distinctly darker and usually more uniformly tinged reddish brown, the anterior and basal part being markedly darker

reddish brown; bristly hairs on antennal joint 1 above and below entirely pale, without some dark or blackish intermixed ones

simplex Wied. (p. 729).

4. (3) Antennal joint 3 (text-figs. 213, *b*–227, *b*) not so markedly long, narrower, more club-like, the apical half at least distinctly much broader than basal part, the basal part distinctly narrower and more slender, with the groove confined to apical half; antennal joint 1 distinctly shorter and 1 and 2 combined distinctly less than length of interocular space on vertex; wings usually slightly less dark and less uniformly tinged reddish brown, the anterior part and base usually less vividly reddish brown; bristly hairs on antennal joint 1 above and below sometimes with a few intermixed dark ones even if only apically . . . . . 5.
5. (10) Hind tibiae and tarsi without a very conspicuous feathery appearance, the hairs not conspicuously long and dense; palps without conspicuous, long, blackish or dark hairs and the hairs along midline below base of proboscis and on head below pale or whitish; proboscis slightly longer, about 4–5 mm. long; scutellum usually black and when reddish legs are also reddish; hair in front of wing-bases, at base of thorax, on scutellum and on basal half and sides of abdomen straw-coloured whitish or yellowish, pale yellowish to golden yellowish, not deep reddish to orange golden, with the small tuft of hair below halteres white and with the squamal fringe also paler and more whitish . . . . . 6.
6. (9) Vertex and basal half of frons shining black; antennal joints 1 and 2, proboscis, scutellum, pleurae and femora very dark blackish brown or black; wings more distinctly tinged subopaquely reddish brown, the anterior and basal part being darker reddish brown; antennal joint 3 distinctly more slender in basal part in relation to broad part . 7.
7. (8) Hairs above on antennal joint 1 predominantly or entirely whitish, those on genae predominantly or entirely whitish and with very few black ones and those on head below predominantly pale or whitish, those on mesopleuron in front of wing-bases and towards front coxae on propleurae and also on coxae predominantly or entirely pale or whitish; hairs on thorax, scutellum and abdomen above (from side) paler and more straw-coloured whitish or yellowish to sericeous; squamal fringe white; wings slightly more subopaquely yellowish red

brevicornis n. sp. (p. 731).

8. (7) Hairs above on antennal joint 1 with more numerous black intermixed ones, those on genae more densely black and those on head below, just below eyes, conspicuously black, those in form of tuft on middle of mesopleuron in front of wing-bases and also towards front coxae and on coxae conspicuously black; hairs on thorax, scutellum and abdomen above deeper yellowish and more golden especially on sides at base of abdomen; squamal fringe distinctly with a pale yellowish tint; wings more greyish hyaline apically and posteriorly, only the costal part and base being subopaquely yellowish red

Form of *brevicornis* n. sp. (p. 732).

9. (6) Vertex, frons, face and rest of head shining pale yellowish brown; antennal joints 1 and 2, proboscis to a certain extent, scutellum, pleurae, the integument of rest of body to a great extent and the entire legs pale

yellowish to ochreous brown; wings more subopaquely yellowish white, the costal and basal parts more subopaquely yellowish; antennal joint 3 slightly stouter in basal part . . . *pallidipes* n. sp. (p. 733).

10. (5) Hind tibiae and tarsi conspicuously feathery in appearance due to longer and distinctly denser hairs; palps also feathery due to conspicuous and longer black hairs and the hairs along midline below base of proboscis black; proboscis shorter, only about 3 mm. long; scutellum reddish and femora not pale like tibiae; hair in front of wing-bases, at base of thorax above, on scutellum and on basal half and sides of abdomen deeper ochreous or reddish to orange golden, with the small tuft below halteres yellowish and with the squamal fringe yellow *pennipes* Wied. (p. 734).

11. (2) Wings slightly paler, less tinged or infuscated, distinctly more greyishly hyaline, only the costal and basal parts being more subopaquely yellowish or faintly yellowish red, with the alula markedly reduced, very vestigial and often almost absent, being linear; antennal joint 3 less developed, comparatively shorter, distinctly more slender, the apical part usually rapidly broadened and thus clavate or knob-like enlarged, the basal part usually slender and rod-like (cf. text-figs. 217, *a*–227, *b*), not distinctly grooved on inner side and, when grooved, it is so only along apical thickened part or apically; hind tibiae distinctly less feathery in appearance, the hairs being shorter, fewer, less conspicuous and less dense; black or dark hairs on genae distinctly denser, longer and more conspicuous, often very dense and distinct; facial brush extending only to antennae on each side, the front part of frons not with the same stiff, erect hairs as in facial brush . . . . . 12.

12. (27) Legs entirely dark brownish, very dark blackish brown or black, only the knees and the articulations of tarsal joints being very obscurely paler 13.

13. (24) Eyes with the coarser facets in upper two-thirds well marked off from the very fine ones in lower third; antennal joint 1 usually with numerous intermixed black hairs above and with a dense black tuft-like group below; wings with a more distinct yellowish tinge in costal and basal part, not distinctly tinged milky whitish in certain lights, with the alula very vestigial, almost absent and only indicated as a narrow margin or line . . . . . 14.

14. (21) Usually larger forms, about 5–9½ mm. long, with a wing-length of about 5–7½ mm.; antennal joint 3 becoming more gradually thickened or clavate apically; facial brush without any intermixed black hairs circumorally; venter with some or comparatively numerous pale or yellowish hairs towards apex; wings sometimes with a tendency for second longitudinal vein to be unstable at about its apical third, being kinked there or provided with a short stump, thus tending to form 3 submarginal cells . 15.

15. (18) Greater part of head below, pectoral and pleural regions, including tuft of hairs below halteres, greater part of venter with predominantly or entirely black hair and with predominantly or entirely black hair on legs; antennal joint 1 above with a few or at least some black hairs; face usually more visibly pale ochreous or yellowish brown . . 16.

16. (17) Hair on thorax, scutellum and abdomen above deep golden, fulvous to

deep orange or reddish golden, especially on abdomen basally and laterally; face more extensively or rather more visibly pale yellowish brown or ochreous brown . . . . . *nigripes* Wied. (p. 737).

17. (16) Hair on thorax, scutellum and abdomen above much paler, almost whitish, very pale sericeous to straw-coloured whitish or yellowish; face less distinctly pale yellowish brown and even visibly darker in some specimens . . . . . *nigripes* Wied. (p. 738).
(Form *bipustulata* Bezz).

18. (15) Body below not entirely or predominantly black-haired, some hairs on pleurae, the tuft below halteres, some at base of venter and numerous intermixed ones on middle and hind femora (all to a variable extent) pale or whitish and more than apical half of venter with pale yellowish or pale golden yellowish to reddish yellow hairs; antennal joint 1 above usually without any black hairs; face usually more darkened or more brownish when visibly paler than the rest of head . . . 19.

19. (20) Hairs on antennal joint 1 below more extensively black; hair on body above more yellowish, sericeous yellow to yellowish on thorax and scutellum and more ochreous, fulvous to reddish yellow on abdomen
nigripes Wied. (p. 737).
(Form of it.)

20. (19) Hairs on antennal joint 1 below entirely pale like those in facial brush or with only 1 or 2 darkish hairs; hair on body above uniformly paler, more straw-coloured to pale sericeous yellowish . *nigripes* Wied. (p. 737).
(Form of it.)

21. (14) Slightly smaller forms, about 4–6 mm. long, with a wing-length of about 4–5½ mm.; antennal joint 3 distinctly more rapidly thickened or broadened at apex, more clubbed, the apical part more knob-like; facial brush more often with some distinct intermixed black hairs circumorally; venter below entirely very dark or black-haired, without any pale hairs even towards apex; wings with the veins towards apex not unstable . . . . . 22.

22. (23) Legs and, to a certain extent, venter, pleurae and head below brownish, reddish brown to sienna brown; pubescence above more yellowish to golden yellow, especially on abdomen, that on antennae above with numerous black intermixed hairs and with the black hair round creamy facial brush much denser and more conspicuous, black ones being present even circumorally in brush; wings with a slightly more distinct yellowish tinge and with the discal cross vein only at about two-thirds, or very little more, beyond middle of discoidal cell; hind tibiae with more numerous, at least 5, more conspicuous spines on outer lower aspect
minuscula n. sp. (p. 739).

23. (22) Legs, venter, pleurae and head below entirely black; pubescence above paler and more pale straw-coloured yellowish, that on antennae above almost entirely whitish and with the black hair round the more whitish facial brush less dense and less conspicuous, no visible black intermixed ones being present circumorally; wings more greyish hyaline and with the discal cross vein more beyond middle, about three-quarters, of discoidal cell; hind tibiae with fewer, about 2 or 3, feebler spines on lower outer aspect . . . . . *montana* n. sp. (p. 740).

24. (13) Eyes with the facets almost equal in size, the ones in upper part imperceptibly merging into the scarcely smaller ones in lower part and the upper part thus not obliquely well marked off; antennal joint 1 with predominantly yellowish hairs above and below, often with only 1 or 2 darkish ones; wings with a distinct, though often faint, subopaquely milky whitish tinge in certain lights, with the alula, though rudimentary, still indicated, narrow and strap-like . . . . . 25.

25. (26) All the bristly hairs in facial brush and hairs on head below, on pectoral and pleural regions and on legs entirely black; wings distinctly, almost opaquely, tinged milky whitish; eyes with the facets comparatively small and of equal size, not distinctly and visibly coarser in upper part; antennal joint 3 (text-fig. 219, *b*) with the thickened apical part spindle-shaped; proboscis slightly shorter and stouter, about 2 mm. long

bicolor Bezz. (p. 741).

26. (25) Hairs in facial brush and on head below, excepting only those on genae and on sides below eyes, pale yellowish white, with the hair on pleural regions, coxae and middle and hind femora predominantly or entirely whitish, but with some dark ones intermixed on front femora and only a few on middle coxae and at base of middle femora; wings with a very faint, slightly subopaque, whitish tinge; eyes with the upper facets visibly coarser than the lower ones, into which they merge almost imperceptibly; antennal joint 3 (text-fig. 220, *b*) clavate apically, with the apical thickened part somewhat truncated apically and not spindle-shaped; proboscis slightly longer, about 3 mm. long.

oneilii n. sp. (p. 742).

(Syn. = *clavicornis* Bezz. nec Wied.)

27. (12) Legs much paler, entirely pale ochreous brown or at least with the tibiae and basal 3 or 4 tarsal joints paler, pale yellowish or ochreous yellow 28.

28. (29) Legs entirely ochreous brownish or pale sienna brownish; integument of body, especially frons, antennae, proboscis, posterior calli, scutellum and pleurae also more or less sienna brownish; antennal joint 2 with a slight knob-like process or lobe below; dark hairs on genae, frons and sides of frons slightly pale-tipped and, when viewed from side, with a distinct, soft, mauvish brown tint and with the dark hairs on body below and on legs also showing a similar mauvish brown tint and with the hair on abdomen distinctly tinted fulvous or orange golden

gonucera n. sp. (p. 744).

29. (28) Legs with the femora black or very dark blackish brown and the tibiae and tarsi pale yellowish or pale ochreous yellow; integument of body above and below black, the antennae black or with at least joint 3 black or slightly more reddish; antennal joint 2 without a lobe-like process below; dark hairs on frons, genae and where present on body below, distinctly darker and less brownish, not distinctly pale-tipped and the hair on body above and abdomen paler, more silvery whitish, sericeous to straw-coloured whitish or yellowish . . . . . 30.

30. (31) Facial brush very dense, soft creamy whitish, short and stiff and with a shorn-off appearance; long hairs on palps, hair on head below, on prosternal region, on coxae and legs and intermixed ones on venter black;

hair on body above very dense, straw-coloured whitish or creamy whitish and with a sericeous sheen in certain lights; hair on femora very dense and also comparatively dense and feathery on hind tibiae; greater part of face luteous or pale ochreous brownish or yellow; antennal joint 3 black and joint 1 thickened; wings with the anal cell provided with a short stalk and with the alula narrow but distinct; claws sickle-shaped, curved downwards from before the middle . *eremobia* n. sp. (p. 745).
(Syn. = *hirtipes* Bezz. nec Wied.)

31. (30) Facial brush comparatively sparse, long and without a distinct shorn-off appearance, silvery whitish, only the long hairs on genae and frons being black; hair on head below and body below and on legs entirely silvery whitish and sparse; hair on body above comparatively sparse, less dense and longer, silvery whitish; silvery hairs on femora sparse and less dense and those on hind tibiae not feathery; greater part of face black; antennal joints (ex descr.) reddish, only the thickened apical part darker and joint 1 not markedly thickened; wings with the anal cell sessile or opening very narrowly on hind border, without a stalk, with the alula very vestigial, indicated as a very narrow margin; claws less sickle-shaped, rather rapidly curved downwards beyond middle
ruficornis Bezz. (p. 747).

32. (1) Wings with 3 submarginal cells present; hairs on head below, pectoral, pleural, ventral regions, on coxae and legs entirely frosty white, only the hair on frons, genae and a few intermixed ones on front femora below black; facial brush extending comparatively broadly behind antennae on front part of frons, where the dense facial type of hairs are also conspicuously present . . . . . 33.

33. (34) Erect hairs on vertex and on ocellar tubercle straw-coloured or whitish, those on basal part of frons predominantly black and with the black hairs on genae conspicuous and continuous on each side with those on frons by a row of equally long and conspicuous black ones; hair on body above, as well as those on abdomen above, straw-coloured whitish to sericeous whitish . . . . . *tricellulata* n. sp. (p. 755).

34. (33) Erect hairs on vertex and on tubercle yellow, those on basal part and front part of frons also predominantly yellow and with only a very few intermixed dark ones, with the long black hairs on genae continuous with the few on frons by a row of much shorter and finer ones; hair on scutellum and abdomen above discally distinctly deeper sericeous yellow
Form of *tricellulata* n. sp. (p. 756).

Key to known ♀♀

1. (44) Wings with the anal cell acute apically or sessile on hind border and often provided with a short stalk, never broadly opening, with the costal cell, on the whole, distinctly broader and distinctly broader at about middle, with the axillary lobe broader and more lobe-like; scutellum never entirely pale yellowish, black in majority of species or sometimes infused with red discally or posteriorly, with the integument along hind margins of eyes to vertex not yellow; pubescence on body above usually much

shorter and sparser; head with the ocellar tubercle less prominently raised, with joint 1 always more than 1½ times as long as 2 and with the labella of proboscis distinctly longer and more developed; legs with the apical spines or spurs on tibiae distinctly shorter, usually not longer than the other tibial spines, with the claws distinctly more curved downwards, more sickle-shaped and the pulvilli better developed, with 3 comparatively long and conspicuous bristly hairs apically on last tarsal joint above, about as long as or even longer than the claws . . . 2.

2. (43) Wings with only 2 submarginal cells present at least on both wings; body always with some black hairs below and, if nowhere else below, then at least with numerous and conspicuous black ones on front femora below from base to apex; genae always with a conspicuous row of black hairs 3.

3. (10) Wings more distinctly tinged subopaquely reddish brown throughout, becoming darker reddish brown anteriorly and basally, with the alula, though small, comparatively well developed and not very vestigial or absent; antennal joint 3 well developed, comparatively long and thick, only gradually broadened towards apex and not very markedly broader or clavate there than towards base, the basal part not conspicuously slender, with a groove on the inner side along its entire length or at least for a great part of its length; body somewhat broad and squat, with a marked Tabanid-like appearance, without much long hair above, but with dense punctures on the thorax and abdomen above, each bearing a very short and fine depressed or erect hair or seta, thus giving the body a slightly dull appearance; hairs on face and frons short and often scarcely visible and with the face conspicuously pale yellowish to ivory yellowish, the yellow extending even behind antennae on front part of frons; last 2 abdominal segments appearing silvery due to denser, slightly longer and more conspicuous depressed silvery hairs . . . . . 4.

4. (7) Antennal joint 3 (text-fig. 213, *a*) broad, strap-like, almost equally broad throughout and grooved along the entire length of the inner side; antennal joint 1 longer, much more than half as long as 3 and joints 1 and 2 combined very nearly as long as interocular space on vertex; occiput with a large, conspicuous yellow spot on each side or sometimes extensively yellow and with a medial black spot; frons and face with very short and inconspicuous hairs, appearing bare, only the lower parts with visible short downy hair; thorax appearing barer from above, but from side, with the very fine and short hairs in the punctures predominant and silvery, the longer erect hairs being less evident . . . . . 5.

5. (6) Form with a conspicuous tuft of black hairs on mesopleuron in front of wing-bases . . . . . *simplex* Wied. (p. 729).
(Syn. =*fuscipennis* Macq. and *Megapalpus fulviceps* Bezz.)

6. (5) Form without a tuft of black hairs on mesopleuron
Form of *simplex* Wied. (p. 731).

7. (4) Antennal joint 3 (text-fig. 213, *b*) slightly less broad, less strap-like, distinctly broader towards apex than basally, grooved on the inner side only in apical half; antennal joint 1 distinctly shorter, only about half or scarcely half as long as 3 and with joints 1 and 2 combined only about half as long as breadth of interocular space; occiput entirely black or with only

a small, inconspicuous, elongate macula on each side; frons and face with longer, denser and more conspicuous hairs, those on face, around buccal cavity, being much denser, longer and very conspicuous, the circumoral part of face also more distinctly darkened or blackened; thorax above also with more numerous and distinctly longer, though sparse, erect silvery hairs in addition to fine silvery bloom-like pubescence . . . . . 8.

8. (9) Hair on head below and long hairs on mesopleuron in front of wing-bases and the long ones on sides of abdomen predominantly or entirely whitish or creamy yellowish, those on sides of abdomen often more fulvous or golden yellowish . . . . . *brevicornis* n. sp. (p. 731).

9. (8) Band of hair on each side of head below eyes, some intermixed hairs on palps, a tuft of long hairs on mesopleuron and conspicuous long intermixed hairs at base of abdomen laterally black

Form of *brevicornis* n. sp. (p. 732).

10. (3) Wings distinctly less infuscated, more greyish hyaline, only the costal and basal parts being tinged yellowish to pale reddish brown, with the alula much reduced, very narrow, linear and often very vestigial and almost absent; antennal joint 3 less developed, comparatively shorter, distinctly more slender, the apical part usually more rapidly broadened or thickened, more often club-like or knob-like enlarged, the basal part being slender and rod-like (cf. text-figs. 217–227), not distinctly grooved on inner side and, if so, the groove is confined to clavate apical part only; body not markedly broad and Tabanid-like, usually normally pubescent above, with fairly dense erect hair, the thorax and abdomen not conspicuously densely punctured and the inconspicuous punctures with the usual long hairs; hairs on frons and face comparatively long and dense, more like those of the ♂♂, with the face also not conspicuously luteous or yellow and the yellow usually not extending behind antennae on front part of frons; last 2 abdominal segments with the usual long pubescence and not particularly silvery . . . . . 11.

11. (38) Legs entirely dark, very dark reddish brown, blackish brown or black or at least not with the tibiae pale yellowish, only the knees and tarsal articulations sometimes obscurely paler . . . . . 12.

12. (15) Frons distinctly transversely depressed before ocellar tubercle; antennal joint 3 somewhat laterally compressed, with a distinct groove indicated on inner side of apical part; palps long, usually much longer than the antennal joints combined . . . . . 13.

13. (14) Body above with sparser and shorter hairs; hairs on antennae below and a few above, the short and long hairs on palps, practically all the hairs on front femora, numerous intermixed ones on middle femora, those on hind tibiae and numerous and dense intermixed hairs on sides of abdomen and on venter black; proboscis longer, about 4 mm. long

longipalpis n. sp. (p. 735).

14. (13) Body above with distinctly denser and longer hairs, especially on thorax; hairs on antennae above and below, all the hairs on palps creamy yellowish, numerous intermixed hairs on front femora, all those on middle and hind femora white and those on hind tibiae yellowish golden and with the dense longish hairs on sides of abdomen, excepting the extreme base,

fulvous or orange golden and with those on venter mostly pale, becoming darker only towards apex; proboscis shorter, about 3¼ mm. long
depressifrons n. sp. (p. 736).

15. (12) Frons if depressed, distinctly not transversely depressed; antennal joint 3 not much laterally compressed for the greater part of its length and usually without a distinct groove-like depression on the inner side of apical part; palps shorter, only about as long as, more often shorter than, antennal joints combined . . . . . 16.
16. (23) Antennal joint 3 (text-fig. 217, *a*) becoming more gradually thickened or clavate apically, the broadened part not well marked off from more slender basal part which is quite half, or even more than half, as thick as in apical part, with the coat of minute spinule-like pubescence on apical part below more distinctly visible and the tubercular prominence of fused terminal joints more conspicuous; palps below and the head medially below with only a few sparse intermixed black hairs or with only pale hairs; wings always more distinctly tinged pale yellowish or pale reddish yellow in costal and basal parts . . . . . 17.
17. (22) Body below usually with more dark hair; front coxae, front femora, middle femora, sides of abdomen and, to a certain extent, towards apex of venter and, to a variable extent, with numerous intermixed black hairs, the front and middle femora being often predominantly or entirely black-haired . . . . . 18.
18. (19) Face with a more diffused pale yellowish brown spot, with a tendency for the diffused spot on each side to be continuous across face in front of antennae; pubescence on body above distinctly more yellowish, often deeper yellowish on mesopleuron in front of wings and more golden yellowish on abdomen above, even more ochreous to orange yellow on sides of abdomen . . . . . *nigripes* Wied. (p. 737).
19. (18) Face usually with a more distinctly defined yellowish brown or often smaller yellowish spot on each side; pubescence on body above much paler, whitish to straw-coloured or sericeous yellowish, even the sides of the abdomen being paler and not deep yellowish-haired . . . 20.
20. (21) Proboscis distinctly more slender; head below with more numerous black hairs; mesopleural tuft in front of wings with numerous intermixed black hairs; antennal joint 3 with the apical half at least more distinctly thickened and marked off from slender basal part, the thickened part equally broad throughout and with the fused terminal joints projecting less forwards . . . . . *nigripes* var. *turneri* n. (p. 738).
21. (20) Proboscis comparatively stouter and thicker; head below with much fewer black hairs, almost predominantly white-haired; mesopleural tuft without any or with very few intermixed black hairs; antennal joint 3 becoming more gradually clavate or thickened apically, this part not distinctly marked off, the broadest part being at apex and with the fused terminal joints distinctly more prominent and lobe-like
nigripes Wied. (p. 738).
(White-haired forms and *bipustulata* Bezz.)
22. (17) Body below usually without, or with fewer, dark hairs; coxae, femora, sides of abdomen and venter with predominantly pale hair, the front femora, however, may have numerous or even entirely black hairs but

the other femora usually with entirely whitish hair, the sides of abdomen with deep ochreous yellow to orange yellow hair and without distinct black intermixed ones . . . Form of *nigripes* Wied. (p. 737).

23. (16) Antennal joint 3 (text-figs. 224–226) distinctly more rapidly broadened or thickened apically, the thickened part distinctly more knob-like or more clavately marked off from a much slenderer basal part which is usually distinctly much less than half as thick as clavate apical part, with the coat of minute spinule-like pubescence below in apical part, if present at all, not visible and the prominence formed by fused terminal joints not projecting prominently; palps below and head medially below usually with very dense and conspicuous black hairs and often entirely black-haired; wings rarely distinctly tinted but more often greyish hyaline or almost entirely hyaline, only the costal cell and base being tinged faintly yellowish . . . . . 24.

24. (25) Small, somewhat sparse-haired, species, about 3½–4 mm. long, with a wing-length of about 4 mm.; antennae, especially joints 1 and 2, the proboscis, entire face, pleurae and legs more sienna brownish, not entirely deep black; head below and front legs only with sparse and not conspicuously dense black hairs; antennal joint 3 slightly more gradually clubbed apically, the apex being more bluntly rounded; proboscis, in relation to body, comparatively long, quite as long as head and thorax together *karooana* n. sp. (p. 748).

25. (24) Usually slightly larger species, more than 4 mm. long and with a wing-length of more than 4 mm., with distinctly denser pubescence; body below or at least pleurae and legs distinctly much darker, very dark blackish brown to deep black; head below, including palps, the front legs and often also the other legs and venter with dense and conspicuous black hair; antennal joint 3 (text-figs. 224–226) rapidly dilated, club-like, ovate or knob-like apically, the basal part being slender and rod-like and the club more pointed and less bluntly rounded apically; proboscis comparatively much shorter, much shorter than head and thorax together . . . . . 26.

26. (27) Facial brush comparatively short and less shaggy; hairs on antennal joints above and below entirely pale or whitish; hairs on pleural regions, middle and hind femora as well as on venter, sides of abdomen and abdomen above predominantly pale or whitish, the abdomen above, towards apex, usually with more straw-coloured hairs and middle femora often with some intermixed dark hairs; knobs of halteres entirely whitish *namana* n. sp. (p. 749).
(Syn. = *clavicornis* Bezz. nec Wied.)

27. (26) Facial brush slightly, but distinctly, longer and more shaggy; hairs on antennal joints above and below black or at least with some conspicuous black ones; hairs on pleurae, femora, sides of abdomen and venter predominantly black or at least with conspicuous and prominent black hairs on at least some of these sites, the abdomen (above at least) usually with more yellowish hair or even with intermixed blackish ones (the body below, especially on abdomen, usually appearing more distinctly black owing to more numerous black hairs on venter and sides of abdomen); knobs of halteres with a tendency to be darkened above and below . 28.

28. (29) Smaller form, about 4½ mm. long, with a wing-length of about 4 mm.; entire head below antennae more or less toffee brownish, the face in front being distinctly more yellowish and the legs and antennae very dark reddish brown; pubescence above distinctly deeper yellow, more golden yellow and the facial brush more fulvous, the hairs on legs entirely dark; antennal joint 3 (text-fig. 224, *b*) very slender, with the ovate clavate apical part more or less confined to apical fourth
ancepsoides n. sp. (labelled as *anceps* Bezz. by Bezzi) (p. 750).

29. (28) Larger forms, usually more than 4½ mm. long and with a wing-length of more than 4 mm.; entire head below antennae black, even the face in front being black or tending to be only obscurely paler, the antennae and legs entirely black or with at least the femora black; pubescence above paler, straw-coloured whitish, sericeous yellowish to pale yellowish, not deeply golden, the facial brush straw-coloured whitish to creamy whitish or yellowish, the hairs on legs, especially middle and hind femora, not all black; antennal joint 3 (text-fig. 217 and 225–226) less slender, with the clavate or thickened apical part more than a fourth of length of joint . . . . . 30.

30. (37) Legs entirely black and the face tending to be brownish or reddish brown in front; interocular space on vertex broader, subequal to or broader than length of combined antennal joints; pubescence on body above, at least on thorax, denser and longer on thorax and abdomen, that on head below, though also predominantly black, less extensive, not occupying entire head below, even posteriorly, and not extending even into lower parts of facial brush; mesopleural tuft always with some intermixed black hairs, the venter with some intermixed pale hairs, the sides of abdomen, even posteriorly, with numerous or intermixed pale hairs 31.

31. (34) Interocular space comparatively narrower, subequal to length of antennal joints; antennal joint 3 with the clavate part not markedly broad, spindle-shaped or spear-head shaped; pubescence on abdomen above sparse and short, and hairs on head also less dense, the hairs and bristly hairs on tibiae, especially hind ones, entirely black . . . 32.

32. (33) Proboscis comparatively long and slender, about 3–4 mm. long, quite as long as head and thorax together; antennal joint 3 with the broadened apical part quite half as long as more slender basal part and more or less equally broadened throughout; face paler and brownish; pubescence on abdomen above more sericeous yellowish and laterally distinctly more yellowish, the black hairs more concentrated laterally on segments 5 and 6 . . . . . *nigripes* var. *turneri* n. (p. 738).

33. (32) Proboscis much shorter, about 1½ mm. long, much shorter than head and thorax together; antennal joint 3 (text-fig. 225, *a*) with the broadened apical part only about a third the length of the joint, more fusiform and the joint more distinctly clavate; face only very indistinctly and obscurely more brownish, almost entirely black; pubescence on abdomen above and also on sides paler and more straw-coloured whitish, the black hairs laterally more numerous than the pale ones and all along sides even from segment 2 . . . . *capensis* n. sp. (p. 751).

34. (31) Interocular space on vertex comparatively broader, broader than length

of antennal joints combined; antennal joint 3 with the clavate or thickened apical part broader, more distinctly spindle-shaped or spear-head shaped; pubescence on body above and on abdomen longer and very much denser and shaggy, the hair on head also denser and the bristly hairs on hind tibiae above more reddish brown . . . 35.

35. (36) Middle and hind femora with entirely or predominantly black hair; mesopleurae (apart from hairs in tuft) with some black hairs; venter with almost entirely black hair and sides of abdomen with more numerous black hairs; proboscis shorter, about 2 mm. long; antennal joint 3 (text-fig. 225, *b*) more spindle-shaped and with the fused terminal joints more prominent . . . . . *campicola* n. sp. (p. 752).

36. (35) Middle and hind femora with predominantly or entirely white hair; mesopleurae (apart from few intermixed black ones in tuft) with entirely white hairs; venter with numerous white and yellowish hairs and not predominantly black-haired, and the sides of abdomen also with distinctly fewer black hairs; proboscis longer, about 3 mm. long and more slender; antennal joint 3 (text-fig. 226) with the clavate apical part even more spindle-shaped and with the fused terminal joints not prominent and lobe-like . . . . . *fusicornis* n. sp. (p. 753).

37. (30) Legs with the femora black, but the tibiae and tarsi very dark reddish brown and the face entirely black; interocular space on vertex markedly narrow and distinctly narrower than combined length of antennal joints; pubescence on body above, even on thorax, shorter and less dense, that on abdomen very short and sparse, that on head below entirely or predominantly black, more extensive, encroaching even into lower parts of face and on entire head below; mesopleural tuft entirely white, the venter also with entirely black hair and the abdomen above and often the sides dark-haired . . . . . *dissimilis* n. sp. (p. 754).

38. (11) Legs with the femora black and the tibiae and tarsi very pale yellowish, pale ochreous yellow or very pale reddish brown . . . . 39.

39. (40) Tibiae and tarsi reddish brown or dark reddish brown and the face entirely dark or black in front; pubescence above shorter, less dense and on abdomen comparatively short and sparse, with numerous black hairs above and below antennal joint 1, with the hair on venter entirely or predominantly black, that on sides of abdomen also predominantly black and with distinct intermixed, short, black hairs discally on abdomen above on last few segments; antennal joint 3 distinctly shorter, only about 2 times as long as joints 1 and 2 combined; wings more distinctly tinged yellowish . . . . . *dissimilis* n. sp. (p. 754).

40. (39) Tibiae and tarsi much paler, pale yellowish to pale ochreous yellow and face in front extensively luteous, pale ochreous yellow to pale yellowish brown; pubescence above distinctly longer, much denser and also long and dense on abdomen above, without any, or with only a few, intermixed black bristles apically and with numerous black ones on antennae below only, with the hair on venter not entirely black, that on sides of abdomen predominantly pale and only with intermixed black ones, the last segments discally without any black hairs; antennal joint 3 distinctly more than 2 times as long as 1 and 2 combined; wings distinctly, but faintly, tinged subopaquely milky whitish . . . . . 41.

41. (42) Face in front extensively pale ochreous yellow or luteous, the yellow extending to margins of eyes, with the facial brush more extensive, denser and shorter and with a more shorn-off appearance, creamy white and without any black bristles circumorally, without any black bristles on antennal joints above and with the black ones on genae not continuous with those on frons; vertex with a pale yellowish brown spot on each side; pleurae, middle and hind femora with predominantly whitish hairs, only some of those on middle femora below black; abdomen with only a few intermixed black bristles on sides posteriorly; slightly larger form, about 8½–9 mm. long . . . . *eremobia* n. sp. (p. 745).
(Syn. = *hirtipes* Bezz. nec Macq.)

42. (41) Face in front usually darker and less extensively luteous, the yellow not, or scarcely, reaching eye-margins, with the facial brush less extensive, less dense, more shaggy, more straw-coloured whitish and always with a few intermixed black circumoral bristles, with a few black ones on antennal joint 1 above and with the black ones on genae continuous with those on frons; vertex entirely black; pleurae, middle and hind femora with entirely or predominantly black hairs; abdomen with more numerous and more conspicuous black hairs intermixed on sides; smaller form, about 6–7½ mm. long . . . *eremobia* var. *braunsii* n. (p. 747).

43. (2) Wings with 3 submarginal cells constantly present on both wings; body below entirely with frosty or snow-white hair, even on head below and femora, only the apical parts of front ones below with some darkish hairs; genae without any black hairs or with only 1 or 2 slightly darker ones on the outer side of brush . . . . *tricellulata* n. sp. (p. 755).

44. (1) Wings with the anal cell broadly opening on hind border, with the costal cell narrower and scarcely broader at middle and with the axillary lobe distinctly much narrower and less lobe-like; scutellum entirely yellow and the integument along hind margins of eyes to vertex and head below as well as entire front half of frons and entire face, genae and head below yellow; pubescence on body above, on the whole, denser, longer, and more shaggy; head with the ocellar tubercle distinctly more prominently raised, higher than the eyes, with joint 1 of the antennae shorter, only about 1½ times as long as joint 2 and with the labella of the proboscis much shorter; legs with the apical spines or spurs on tibiae distinctly longer, more developed and longer than the rest of the spines, with the claws less curved downwards apically, less distinctly sickle-shaped, the pulvilli narrower and less developed and with more than 3 bristly hairs apically on last tarsal joints above, the 3 longest of which are very much shorter, less conspicuous and very much shorter than the claws
ochrostoma n. sp. (p. 757).

C. simplex Wied.

(P. 327, Aussereurop. Zweifl. Ins. i, 1828, Tab. IV, fig. 2 *a–d*; Bezzi, p. 74, Ann. S. Afr. Mus., vol. xviii, 1921.)

(Syn. = *fuscipennis* Macq., p. 109, Dipt. Exot., ii, Tab. X, fig. 1, 1840 (♀); = *Megapalpus fulviceps* Bezzi, p. 87 and 473, Ann. S. Afr. Mus., vol. xviii, 1921 (♀).)

This species, originally described from a single ♂-specimen by Wiedemann and taken by him as the genotype of *Corsomyza*, is sexually dimorphic to such a marked extent that the ♀ has even been described as a *Megapalpus* by Bezzi (p. 87, loc. cit.) and as a separate species by Macquart. Macquart gives quite a satisfactory description and a good representation of the ♀-*fuscipennis* to which Bezzi referred (p. 74, loc. cit.) and even suspected to be the ♀ of *simplex*, yet nevertheless proceeded to describe the same species as *Megapalpus fulviceps* on p. 87 in the same paper and, in an appendix, on p. 473 again reiterates his suspicion. There can be no doubt that *Megapalpus fulviceps*, the type of which is in the South African Museum, is identical with Macquart's *fuscipennis* and that both of them are synonymous with *simplex* Wied., of which they represent the unknown ♀. The structure and shape of the third antennal joints, the infuscation of the wings, the yellowish tibiae and the black tuft of hair on the mesopleurae are identical with those of the ♂-*simplex*. The characteristic strap-like, compressed and grooved third antennal joints are markedly developed only in this species.

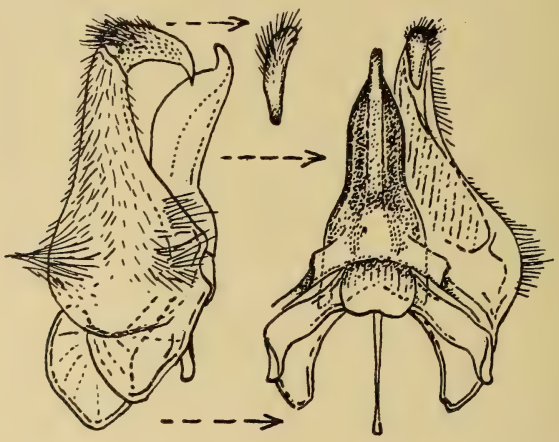


(*a*) (*b*)

Text-fig. 213.—(*a*) Antenna of ♀ *Corsomyza simplex* Wied. (*b*) of ♀ *C. brevicornis* n. sp.

The chief distinguishing characters of this species are:—The wings are tinged more or less uniformly subopaquely reddish or reddish brown, being darker reddish brown in costal cell, bases of marginal and first submarginal cells, first basal cells, to a certain extent in second basal cell and at base in both sexes. *Head* relatively broad, appearing markedly broad in ♀♀, with the facial brush fine and dense, creamy yellowish in ♂♂, composed of very minute, scarcely discernible, hairs in ♀♀, the entire face in ♀♀ thus bare and ivory yellowish, with some slightly longer hairs visible lower down and with long ones on head below; frons shining black in basal half in

♀♀ and also with very short black hairs; occiput in ♀♀ with a large diffuse yellow spot enclosing a smaller black spot or with a yellowish spot on each side; antennae long and with antennal joint 3 (text-fig. 213, *a*, right one of ♀) characteristic, somewhat laterally compressed, strap-like, gradually broadened apically, slightly excavate apically and also with a groove on the inner side from base to apex, with antennal joints 1 and 2 combined about as long as interocular space in ♂♂ and very nearly as long as this space in ♀♀, joint 1 in ♀♀ appar-



Text-fig. 214.—Side view and greater part of ventral view of hypopygium of ♂ *Corsomyza simplex* Wied.

ently slightly longer than in ♂♂, somewhat scabrous and with the hairs short and poorly developed. *Body* above in ♂♂ with fine, dense, shaggy, straw-coloured yellowish to deep golden or orange-golden hair, especially on sides of abdomen, in ♀♀ comparatively bare, the integument being markedly punctured and each puncture with a minute whitish hair, which hairs on thorax are silvery when viewed from side, the punctures on abdomen giving it a rough appearance and the minute depressed hairs mostly dark, only those on last 2 segments longer and more silvery; scutellum in ♀♀, however, with some long, dark and whitish, erect bristly hairs posteriorly; sides of thorax, base of abdomen laterally and extreme sides of abdomen below in ♀♀ with snow-white to dull creamy whitish hair, with or without a mesopleural tuft of black hairs in front of wing-bases in both sexes; pleural parts with sparse, whitish hair in ♀♀ and also predominantly pale or whitish in ♂♂; coxae, femora and hind tibiae with very dense, fine, black hairs in ♂♂, sparser and less

conspicuous in ♀♀; tibiae and tarsi in both sexes pale yellowish brown to yellowish, only the last, or last 2, tarsal joints dark, the femora in ♀♀ also with denser and more obvious fine short hairs.

The species seems to vary slightly, some ♂♂ being paler and less orange golden-haired than others and some ♂♂ and ♀♀ have entirely white hair on the mesopleuron in front and below the wing-bases and the yellow spots on occiput in ♀♀ also vary in size and extent. The ♀♀ have a marked superficial resemblance to some Tabanids and are more often seen on the flowers of *Compositae*.

The *hypopygium* of the ♂ (text-fig. 214) with fairly conspicuous hairs on dorsum of basal parts; beaked apical joints claw-shaped, laterally compressed, punctured, on sides, with the short bristly hairs more or less confined posteriorly above and tuft-like, with the beak sharp from side but less sharp from in front; aedeagus, as shown in figures, the apical part blunt and slightly directed upwards, with the dorsal aedeagal struts not visibly projecting, only visible from obliquely below middle part; lateral struts with the apical part slightly directed flap-like downwards.

Length of body: about 6–11 mm.

Length of wing: about 7–10 mm.

Locality.—W. Cape Province and Olifant's River Valley to Namaqualand. (In the Transvaal and South African Museums.)

5 ♂♂ 9 ♀♀ *C. brevicornis* n. sp.

(Syn. = *simplex* Bezzi nec Wied.).

This species, of which a ♀ from Port Nolloth in Namaqualand was labelled as *simplex* by Bezzi, so closely resembles *simplex* that an enumeration of the differences will suffice: Pubescence on body above in ♂♂ usually slightly paler, the hair on frons, antennal joint 1 and face in ♀♀ much longer, denser and more conspicuously developed, though still less so than in other species, that on front part of frons and on face white in ♀♀, duller whitish to creamy in ♂♂; face in ♀♀ less extensively yellow, a definite dark or black infusion being present on each side of buccal cavity; occiput in ♀♀ without any yellow spots or with only a small and insignificant spot on each side; antennae distinctly shorter, antennal joint 1 being distinctly shorter and joints 1 and 2 combined distinctly less than breadth of interocular space in ♂♂ and only about half, or scarcely half as long as width of interocular space in ♀♀ (nearly as long as width of space

in ♀-*simplex*), with antennal joint 3 (text-fig. 213, *b*, right one of ♀) slightly less strap-like, distinctly more broadened from middle to apex and grooved on the inner side only from about the middle to apex and with or without some intermixed blackish hairs near apex above and below on joint 1 in ♂♂; thorax above in ♀♀ with more numerous and longer erect hairs in addition to fine, very short and bloom-like, silvery ones and hairs on sides and in front of wing-bases long as in the ♂♂, but whiter or paler white to creamy yellowish, that on sides of abdomen in ♀♀ long and whitish to pale yellowish as in ♀-*simplex* and also with the short, depressed hairs on last two segments above silvery or pale sericeous yellowish; wings tending to be slightly less deeply tinged reddish brown or yellowish; coxae in ♂♂ predominantly white-haired or with a tendency to have more intermixed pale or whitish hairs. *Hypopygium* of ♂ like that of *simplex* (cf. text-fig. 214) but with slightly less conspicuous hairs on basal parts, with the beaked apical joints slightly more slender towards apex from side, thus apparently more sharply pointed.

The species seems to show the same variations as *simplex*. A ♂ from Van Rhynsdorp and a ♀ from the Western Province differ from the types in that in the ♂ the pubescence above is deeper yellowish and more golden, with more numerous black hairs above on antennal joint 1, those on genae and on head below, just below eyes, more conspicuously black, the hair on mesopleuron in front of wings with a conspicuous tuft of black ones, with the wings slightly less tinged towards apex and along hind border and the squamal fringe more yellowish; ♀ with apparently more shaggy and longer hair on face, with the hair on body above also more sericeous yellowish on thorax and distinctly more golden yellowish, not whitish on sides of abdomen, with the hair on head below, on each side just below eyes, that on frons and tubercle and those in a tuft on mesopleuron black as in ♂, with distinct black hairs basally on each side of abdomen in both sexes but more conspicuous in ♀ and with comparatively more dark hairs on middle and hind femora.

Holotype in the British Museum, allotype in the South African Museum and paratypes in the Albany and Transvaal Museums.

Length of body: about 6–10½ mm.

Length of wing: about 6–11 mm.

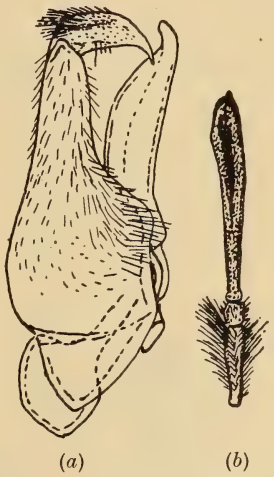
Length of proboscis: about 4–5 mm.

Locality.—W. Cape Province: Cape Flats; Rapenberg (Turner, 1-14/10/20) (Holotype); Cape Town (Mus. Staff, Oct. 1929) (Allotype); Stellenbosch (Brauns, Sept. 1915); Somerset West (Hesse,

Sept. 1927). N.W. Cape Province: Port Nolloth (Lightfoot, 1889); Van Rhynsdorp (Brauns, Sept. 1928). S.E. Karoo: Willowmore (Brauns, 10–15/8/21). E. Cape Province: Uitenhage: Kariega (Webber); Grahamstown (Daly and Sole, Sept. 1913).

1 ♂ *C. pallidipes* n. sp.

Integument of entire head, pleurae and pectoral regions, scutellum, sides of abdomen and the venter more or less yellowish brown, the head being more ochreous brown; antennal joints 1 and 2 and legs pale ochreous yellowish, inclining to pallid yellowish, only the last tarsal joint being black; proboscis brownish and palps pallid; eyes brownish; pubescence whitish behind ocellar tubercle, in facial brush, on head below, lower parts of pleural regions and on venter below, pale sericeous yellowish on thorax in front above, appearing almost whitish from in front, golden yellow on towards base of thorax above, on scutellum and abdomen above, becoming slightly deeper yellow in certain lights on sides of abdomen, more creamy yellowish on mesopleuron in front of wings, with the hairs on sides of vertex, on frons, on antennal joint 1 above, on genae and extending to below eyes, on palps, some intermixed ones in mesopleural tuft, those at extreme base of abdomen on segment 1 laterally, those on coxae, femora and tibiae dark brownish, those on frons slightly more blackish brown; wings subopaquely yellowish, with a distinct pale yellowish brown tinge, the costal cell and base being more yellowish, with the veins pale yellowish, the alula, as in *simplex* and *brevicornis* narrow and parallel but yet well developed for this genus, with the squamal fringe whitish; halteres yellowish and with white knobs. *Head* with the upper coarser facets of eyes more or less confined to slightly more than the upper half and distinctly marked off from the finer ones below; antennae with joint 3 (text-fig. 215, *b*, right one) longer than 1 and 2 combined, gradually broadened towards apex, somewhat laterally compressed, grooved on the inner side from about the



Text-fig. 215.—(*a*) Side view of hypopygium of ♂ *Corsomyza pallidipes* n. sp. (*b*) Antenna of ♂ of same species.

middle to apex; proboscis slender and about 4 mm. long. *Legs* with the short spinule-like hairs on femora, apart from the long hairs, dense and conspicuous as in other species of the *simplex*-group. *Hypopygium* (text-fig. 215, *a*) like that of *simplex* (cf. text-fig. 214).

Type in the South African Museum.

Length of body: about 10 mm.

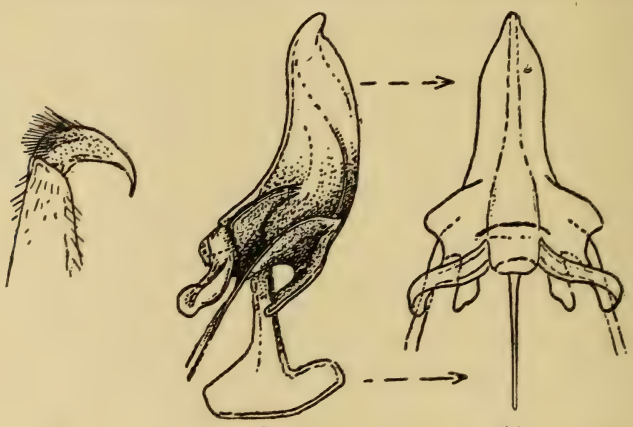
Length of wing: about 8½ mm.

Locality.—Without any locality label but presumably from the S. Cape Province.

C. pennipes Wied.

(P. 328, Aussereurop. Zweifl. Ins., i, 1828; Bezzi, p. 75, Ann. S. Afr. Mus., vol. xviii, 1921, Pl. I, fig. 14; Paramonow, p. 120, Trav. Mus. Zool. Kiev, No. 11, 1931.)

The single ♂-specimen before me is the specimen referred to by Bezzi in his monograph of the South African Bombyliidae. There is a



TEXT-FIG. 216.—(*a*) Side view of beaked apical joint of hypopygium of ♂ *Corsomyza pennipes* Wied. (*b*) Side view, and (*c*) ventral view of aedeagal complex of ♂ *Corsomyza pennipes* Wied.

suspicion that the type of Wiedemann, judging from his description, is also a ♂. In this genus hairiness of the femora and especially the hind tibiae is more strongly and conspicuously developed in the ♂♂ and the pubescence on body above, if vividly coloured, is usually much paler in the ♀♀. The ♂ of this species is easily distinguishable from ♂♂ of other species in this series by the very deep reddish or orange golden pubescence in front of the wing-bases, on disc of thorax

towards the base, on the scutellum and in basal half of abdomen, the black-haired palps and the black hairs on each side of lower part of buccal cavity, the comparatively short proboscis (about 3 mm. long), the predominantly pale hairs on the coxae, especially the middle and hind ones and the very conspicuous feathery nature of the hairs on hind tibiae and tarsi. *Hypopygium* (text-fig. 216, *a*, *b* and *c*) with the beaked apical joints (*a*) slightly more arched, and the apical part more slender and pointed than in *simplex* and *pallidipes*: aedeagus (lateral view (*b*) and ventral view (*c*)) shown separately, with the apex blunt and also showing the posterior aedeagal struts on each side and the lateral ramus on each side and which is joined on to the basal parts in the intact hypopygium and which is also connected to a flange-like flap on each side dorsally.

Locality.—Cape Province and probably Western Cape Province.

1 ♀ *C. longipalpis* n. sp.

Body, including legs, black; face in front on each side of buccal cavity and to a certain extent lower part of face and genae obscure brownish yellow; facial brush, tuft of long hairs on each side of thorax in front of wings creamy yellowish, with the hairs on ocellar tubercle, some antero-laterally on pronotum, intermixed ones on lower parts of mesopleuron, on coxae and on hind femora whitish, those on sides of tubercle, on frons, genae, predominantly on head below, the numerous intermixed ones on antennal joint 1 above and below, the short and long ones on palps, on lower parts of pleurae, on front and middle femora and intermixed ones on hind ones towards apex black; pubescence on thorax and abdomen above short and sparse, that on thorax in form of fine, depressed, pale brassy hairs and sparse, comparatively short, erect, straw-coloured yellowish or sericeous hairs in certain lights, that on abdomen discally above very sparse and short, golden yellowish, the greater part of abdomen thus appearing smooth, only the last two segments with slightly more depressed or slightly denser brassy to golden pubescence in addition to short dark ones on last segment, with the long ones on sides of abdomen at base composed of intermixed yellowish and whitish ones, those on sides of segments 4–6 predominantly black but with some pale and yellowish ones intermixed, with the sparse ones on venter towards apex black: wings greyish hyaline, but with a very faint yellowish tinge, with the costal cell and across to base being more distinctly subopaquely yellowish, with the veins yellow, becoming darker in apical part,

with the alula very vestigial and only indicated as a narrow line, with a tendency for the second longitudinal vein to be unstable at about the apical third, where it is kinked, tending to give off a stump, with the opaquely whitish squamae brown-bordered and entirely fringed with white; halteres pale brownish yellow, with almost white knobs. *Head* with a distinct transverse depression from eye to eye across basal half of frons in front of tubercle, with a tendency for frons to be slightly longitudinally, but divergently, striate or wrinkled, especially in the transverse depression; antennae with joint 3 somewhat laterally compressed, not very much broadened apically, slightly more than 2 times as long as 1 and 2 combined and with a distinct groove on inner side in about the apical third; proboscis about 4 mm. long; palps comparatively long, longer than the antennal joints combined.

Type in the South African Museum.

Length of body: about 7 mm.

Length of wing: about $6\frac{3}{4}$ mm.

Locality.—Western Cape Province: Stellenbosch (v. Heerden, 29/10/31).

This species and the following one are distinguished from all other species (♀♀) by the presence of a distinct transverse depression across frons, this depression not being merely medial as in other species. This ♀ also shows a relationship with the ♀♀ of *simplex* and *brevicornis* in the comparatively smooth nature of the body above and the grooved third antennal joints.

1 ♀ *C. depressifrons* n. sp.

Body, including legs, entirely black; face in front and also lower part dull yellowish brown; pubescence with the hair on antennal joint 1 above and below, in facial brush, on palps, head below, sides of thorax in front of wings and at base of abdomen creamy yellow, that on ocellar tubercle, on pleurae, pectus, extreme base of venter, on coxae, intermixed ones on front femora and all those on middle and hind ones whitish, the frontal hairs and those on genae, some on extreme sides below eyes, some on last tergite and sternite and the intermixed ones on front femora black, that on thorax above fairly dense, composed of numerous shorter, erect ones and sparser longer ones and all sericeous yellow, becoming more yellowish towards base, those on scutellum dense and more yellowish, those on abdomen discally sparser than on thorax, composed of longish, erect, golden

ones, becoming paler towards base and finer, shorter, slightly denser, depressed ones towards apex and with the long ones on sides of abdomen, segments 2–5, deep orange yellowish, becoming paler laterally on venter, with the hairs and bristly hairs on hind tibiae above and laterally yellowish golden; wings greyish hyaline, with a faint yellowish tinge, the costal, basal half of first basal cell and base more distinctly subopaquely yellowish, with the veins brownish, the third longitudinal vein, costal vein and fifth longitudinal vein more yellowish, with the alula very narrow and the dark-bordered squamae fringed with whitish hairs; halteres yellowish and with whitish knobs. *Head* with a distinct transverse depression across basal half of frons and also with a tendency for frons to show longitudinal wrinkles or striae laterally; proboscis about 3 mm. long; palps long, a little more than half as long as proboscis.

Type in the Transvaal Museum.

Length of body: about 8 mm.

Length of wing: about $7\frac{2}{3}$ mm.

Locality.—W. Cape Province: Olifant's River Valley; Clanwilliam (Brauns, Sept. 1928).

C. nigripes Wied.

(P. 328, Aussereurop. Zweifl. Ins., i, 1828; Loew, p. 198, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 75, Ann. S. Afr. Mus., vol. xviii, and pp. 105–106, The Bombyliidae of the Ethiopian Region, 1924.)

(Syn. = ♂ *Lasioprosopa bigotii* Macq., p. 83, Dipt. Exot. Suppl. v, 1855, Tab. IV, fig. 11; Bezzi, p. 75, loc. cit., and p. 103, loc. cit.; ♀ = *clavicornis* Wied., p. 329, Aussereurop. Zweifl. Ins., i, 1828; Loew, p. 199, loc. cit. in note.)

The species has been fully and adequately described by Loew. It is chiefly recognised by the entirely black legs and the third antennal joints (text-fig. 217, *a*, right one of ♀) which are not flattened and strap-like and grooved as in the *simplex*-series nor distinctly clavate, being less rapidly and more gradually broadened in apical part, where the fine spinule-like pubescence below is also more distinct and visible in the ♀♀ at least. The second longitudinal vein has a tendency to be unstable at about its apical third, where there is often a slight kink or even a short stump and the vein separating marginal and submarginal cells in some forms also has the tendency to be stumped at its bend near the base, thus tending to form 3 submarginal cells, with the alula much reduced, vestigial and very narrow. The species

is distinctly variable in the colour of the pubescence and quite possibly more forms exist than are separated in the key. The *hypopygium* of the ♂ (text-fig. 217, *b*) like that of *simplex* (cf. text-fig. 214), but with the beaked apical joints more slender apically, the beak being more slender; basal parts with much hair in neck region; aedeagus with a slightly shorter apex and with the basal strut narrower and shorter.



(*a*) (*b*)

TEXT-FIG. 217.—(*a*) Antenna of ♀ *Corsomyza nigripes* Wied. (*b*) Side view of hypopygium of ♂ of same species.

Locality.—Western Cape Province, Karoo and Namaqualand. (In the Transvaal, British, Albany and South African Museums.)

The species *C. bipustulata* Bezz. (p. 106, The Bombyliidae of the Ethiopian Region), according to the description, appears to be only a very pale-haired variety or form of *nigripes*, and *Lasioprosopa bigotii* Macq., as has already been stated by Bezzi, is also synonymous with *nigripes*. A careful comparison of the ♀ of *nigripes* with the description of Wiedemann's *clavicornis* (p. 329, loc. cit.) supports Loew's contention that the supposed ♂-*clavicornis* is in reality a ♀ agreeing with *nigripes*. Wiedemann as well as Macquart and Bezzi were not quite sure about the sex of their species in this genus. The ♂♂, however, are so typical and distinct that no confusion is possible when a series of both sexes is present. The specimens, labelled by Bezzi as *clavicornis* Wied., are separate and distinct species, not agreeing with Wiedemann's description of *clavicornis* nor with *nigripes*.

1 ♀ *C. nigripes* var. *turneri* n.

This specimen so closely resembles white-haired forms of *nigripes* and yet showing distinct differences that it can be considered as a distinct variety. It differs from the various colour-forms of *nigripes* in having the third antennal joints more or less equally broad in the broader apical half, which is also more marked off from the more slender part, a comparatively long and slender proboscis, about 3 mm. long, with slightly more numerous intermixed black hairs on head

below and slightly more numerous intermixed black ones in mesopleural tuft in front of wings. The rest of the pubescence is as follows:—Facial brush straw-coloured whitish, the hair on middle femora composed of numerous black and some intermixed white ones and that on hind femora predominantly whitish, that on thorax above also straw-coloured yellowish, paler in front and on sides, more sericeous yellow on disc and on scutellum, where the longer ones are distinctly yellowish, that on abdomen above very sparse and short, sericeous yellowish, longer and distinctly more yellow on sides, becoming much longer and more golden yellowish on sides of first segment and with numerous black hairs, tuft-like, on sides of segments 5 and 6 and shorter ones apically.

Type in the British Museum.

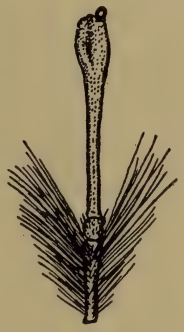
Length of body: about $5\frac{2}{3}$ mm.

Length of wing: about $5\frac{1}{2}$ mm.

Locality.—S.E. Cape Province: Mossel Bay (Turner, Sept. 1921).

3 ♂♂ *C. minuscula* n. sp.

Body black above; face and head below, proboscis, pectoral and pleural regions very dark toffee brown to blackish brown, the face in front often slightly more yellowish brown; antennal joints 1 and 2, palps and legs dark reddish brown or castaneous brown to blackish brown; facial brush very pale yellowish white to pale yellowish and with some intermixed black hairs above buccal cavity and along its sides; pubescence with the hairs on ocellar tubercle in front, on frons, very densely on genae, on lower part of face, head below, on palps, those comparatively densely intermixed on antennal joint 1 above and below, on the entire body below, on posterior and lower part of mesopleural tuft in front of wings, sides of abdominal segment 1, the sides of the other segments and on the legs very dark blackish brown to dull black, but sometimes with a slight mauvish tint, with the hair on posterior part of tubercle, thorax above, scutellum and abdomen above yellowish, that on thorax often slightly paler, but that on thorax and abdomen usually more golden yellow to deep golden and even orange golden; wings comparatively feeble, very feebly tinged yellowish, more greyish hyaline, with the costal and basal parts



Text-fig. 218.—Antenna of ♂ *Corsomyza minuscula* n. sp.

more yellowish, with the veins yellowish brown or yellowish, the alula very vestigial, very narrow and almost absent and the squamae dull whitish and fringed whitish; halteres pale yellowish brown to brownish, with dirty yellowish to pale yellowish brown knobs. *Head* with the pubescence comparatively long and shaggy, with the coarser facets above on slightly more than upper half, well marked off from the finer lower ones; antennal joint 3 (text-fig. 218, right one) about 2, or a little more, times as long as 1 and 2 combined, distinctly clavate, the thickened apical part rapidly broadened and marked off from the slender basal part, the apex somewhat obliquely truncated and the tubercle, formed by fused terminal joints, usually fairly prominent; proboscis slender, comparatively long, about $2\frac{1}{3}$–4 mm. long. *Hypopygium* like that of *nigripes* but smaller, with the hairs on basal parts less conspicuous in neck region and with the apical spout-like part of aedeagus slightly longer, more slender and sharper when viewed from side.

Type in the South African Museum.

Length of body: about 5–6 mm.

Length of wing: about 4–$5\frac{1}{2}$ mm.

Locality.—Western Cape Province: Somerset West (Hesse, Sept. 1927) (Type). Unlabelled specimens, presumably also from the Western Cape.

This species is recognised by its small size, its dark reddish brown body below and legs, the dense and conspicuous black hairs on the genae and the black hair below. From the ♂-*anceps* Bezz. (p. 106, The Bombyliidae of the Ethiopian Region) it differs, according to the description, in having the face in front more or less yellowish brown, antennal joint 3 markedly and distinctly clavate apically, more brownish proboscis and palps, entirely black-haired pleurae and venter, etc. From small specimens of *nigripes* it differs in being entirely black-haired below, by the longer and more slender proboscis, the distinctly clavate third antennal joints and dark brownish or reddish brown legs and pleurae.

1 ♂ *C. montana* n. sp.

This unique ♂-specimen is very close to *minuscula*, from which it differs in the following points:—Pubescence above on thorax paler, more pale straw-coloured yellowish, that on abdomen also less yellowish, that on face whiter, with fewer or without any black intermixed hairs on antennal joint 1 above and apparently without

any intermixed black hairs circumorally on face; integument of face in front much darker and the proboscis, head below, pleurae and legs entirely black; wings as in *minuscula*, but apparently even more greyish hyaline, with the discal cross vein ever slightly more beyond the middle of discoidal cell, quite at apical three-quarters (about apical two-thirds in *minuscula*); legs with much fewer and feebler spicules or spines on middle and hind tibiae, the hind ones with only 2 or 3 visible spines on outer lower side (at least 5 in *minuscula*) and none on inner aspect; antennal joint 3 as in *minuscula* and the proboscis as slender, about 2 mm. long.

Type in the South African Museum.

Length of body: about $4\frac{1}{2}$ mm.

Length of wing: about 4 mm.

Locality.—W. Cape Province: Tulbagh Distr.; Sneeuwgat Valley, alt. 3000–4000 ft. (Mus. Exp., Oct. 1934).

C. anceps Bezz.

(P. 106, The Bombyliidae of the Ethiopian Region, 1924.)

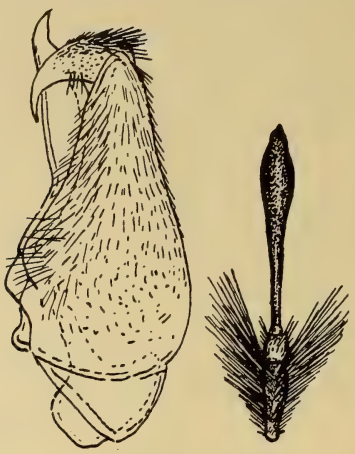
A careful comparison of Bezzi's description with small specimens of *nigripes* raises a suspicion that *anceps* is only a small variety or form of *nigripes*, in which there is a tendency for the tibiae to be slightly more dark reddish, due to a slight translucency in a small specimen. The fact that the third antennal joints are broadened apically to the same extent, that the wings show the same instability on the veins separating the marginal and submarginal cells and thus tending to show 3 submarginal cells, and the yellowish hair towards upper parts of pleurae seems to support this suspicion. The supposed ♀ of *anceps*, from Namaqualand and referred to on p. 78 (Ann. S. Afr. Mus., vol. xviii, 1921), is not *nigripes* and also does not agree with Bezzi's description of his *anceps* s. str.

C. bicolor Bezz.

(P. 78, Ann. S. Afr. Mus., vol. xviii, 1921.)

The chief characters of this yellow-haired species are the entirely black facial brush, the tufts of yellow hair on antennal joint 1 above and below, the entirely black hair on pectoral and pleural regions and on legs, the entirely deep ochreous or fulvous-haired abdomen, even on venter, the almost opaquely milky whitish wings, the almost

equal size of facets of eyes, there being no visible line of division and the characteristic antennal joint 3 (text-fig. 219, *b*, right one) the



(*a*) (*b*)

TEXT-FIG. 219.—(*a*) Side view of hypopygium of ♂ *Corsomyza bicolor* Bezz. (*b*) Antenna of ♂ of same species.

apical part of which is very distinctly spindle-shaped. *Hypopygium* as shown in text-fig. 219, *a*.

Locality.—Namaqualand.

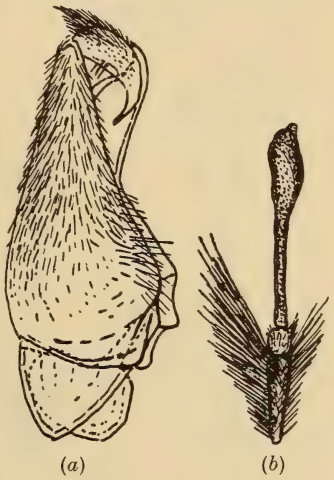
1 ♂ *C. oneilii* n. sp.

(Syn. = ♂-*clavicornis* Bezz. nec Wied., p. 77, Ann. S. Afr. Mus., vol. xviii, 1921.)

As was suspected by Loew (p. 199, Dipt. Faun. Südafr., i, 1860, footnote) and also referred to under *nigripes* in this paper, the ♂-*clavicornis* of Wiedemann (p. 329, Aussereurop. Zweifl. Ins., i, 1828) is doubtfully distinct from the ♀ of *nigripes*. This ♂-specimen, referred to *clavicornis* by Bezzi, does not agree with Wiedemann's description of a ♀-*nigripes* and is in fact an entirely different species, with certain distinct characters, necessitating a separate specific status and the following redescription:—

Body black; head with the greater part of the face castaneous brown, the face in front more distinctly yellowish brown; legs very dark blackish brown; pubescence with the hair on ocellar tubercle, that on antennal joint 1 above and below, that on entire face and on greater part of head below pale yellowish, that on frons, a few on sides of vertex, that on genae, some intermixed ones on palps, on

sides below eyes, predominantly on front coxae and femora, some intermixed ones on middle coxae and bases of middle femora, a few intermixed ones on mesopleuron in front of wings and some shortish ones on sides of first abdominal segment black, that on thorax and scutellum above yellow, that in mesopleural tuft tending to be more creamy yellow or whitish, that on abdomen above more fulvous or deep ochreous yellow, especially on the sides, with the hair on head below posteriorly, on propleural part, on mesopleurae, intermixed ones on front coxae and bases of front femora, predominantly on middle legs and entirely on hind coxae and femora and the sparse ones on venter white, the hair on hind tibiae, however, blackish brown; wings slightly greyish hyaline, with a scarcely perceptible faint tinge of yellowish, the yellow more distinct in costal cell, first basal cell and base, with the veins yellowish, becoming very slightly darker towards the extreme apical parts, with the alula rudimentary, very narrow, but slightly more distinct than in *nigripes*, with the whitish opaque squamae entirely fringed with white; halteres yellowish, with paler knobs. *Head* with the facets almost imperceptibly coarser in upper half, not distinctly or visibly marked off from the slightly finer lower ones; antennal joint 3 (text-fig. 220, *b*) about $1\frac{3}{4}$ times as long as 1 and 2 combined, with the broadened apical part markedly clavate and well marked off from the very slender and rod-like basal part; proboscis about 3 mm. long. *Hypopygium* as shown in text-fig. 220, *a*.



Text-fig. 220.—(*a*) Side view of hypopygium of ♂ *Corsomyza oneilii* n. sp. (*b*) Antenna of ♂ of same species.

Type in the South African Museum.

Length of body: about 6 mm.

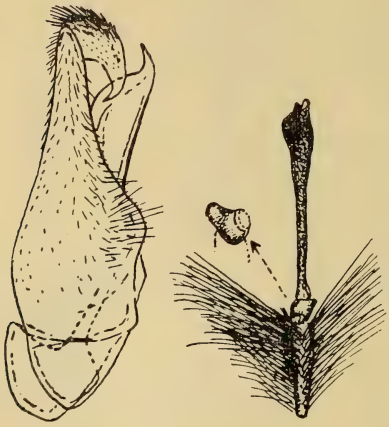
Length of wing: about $5\frac{1}{2}$ mm.

Locality.—E. Cape Province: Dunbrody (O'Neil, 1902).

The ♂ of this species shares with the ♂ of *bicolor* the character of having no clear delimitation between coarser upper facets and finer lower ones on the eyes, the facets themselves being almost of equal size in *bicolor* and only very slightly coarser in upper half in the case of *oneilii*. Further distinguishing characters are given in the key.

1 ♂ *C. gonucera* n. sp.

Integument of body more or less dark sienna or castaneous brownish, the frons shining dark sienna brownish, the posterior calli and scutellum dull brownish and the thorax and abdomen above more blackish brown, the pleurae also sienna brownish, with the antennae, palps, proboscis and legs ochreous brownish and the face in front extensively paler ochreous or yellowish brownish; pubescence with the hair on sides of tubercle, on frons, densely on genae, that on outer sides of facial brush, intermixed ones on palps, that on head below, intermixed ones in mesopleural tuft, on lower parts of pleurae, in the small tuft below halteres, at extreme base of abdomen, on venter basally and on the coxae and legs soft, dark brownish, slightly paler-tipped and, in certain lights, with a distinct mauvish brown tint, that on antennal joint 1 above and below and in facial brush dense and long, soft pale yellowish, inclining to creamy yellowish in certain lights, with the shorter pubescent hairs transversely across frons in front more whitish, with the hair on body above soft yellowish, that on tubercle with more whitish gleams, that on thorax silky yellowish, that on abdomen distinctly more fulvous or orange golden and with pale golden yellowish gleams, the orange golden more apparent towards the bases of the individual hairs, with the hair on venter more whitish, becoming more yellowish apically; wings greyish hyaline, but with a faint subopaque whitish tinge, the costal and basal parts more distinctly tinged yellowish, with the veins pale yellowish, the alula very vestigial and almost absent, with the opaquely whitish squamae fringed with white; halteres yellowish, with whitish knobs. *Head* with the coarser facets in upper two-thirds of eyes distinctly marked off from the finer ones below; antennae with joint 3 (text-fig. 221, *b*) slender, the gradually thickened apical part laterally compressed, markedly obliquely truncated and there obliquely sub-



(*a*) (*b*)

Text-fig. 221.—(*a*) Side view of hypopygium of ♂ *Corsomyza gonucera* n. sp. (*b*) Antenna of ♂ of same species.

sulcate, with joint 2 produced below into a knob-like or lobe-like process on the inner side (cf. text-fig. 221, *b* in the middle); proboscis slender, about 3½ mm. long. *Hypopygium* as shown in text-fig. 221, *a*.

Type in the South African Museum.

Length of body: about 7½ mm.

Length of wing: about 7½ mm.

Locality.—Without a locality-label, but probably from Namaqualand.

Easily distinguished from all other species by the soft yellowish pubescence on body above, mauvish brown pubescence below, sienna brown integument, ochreous brown legs and the more distinct lobe-like prominence on antennal joint 2 below.

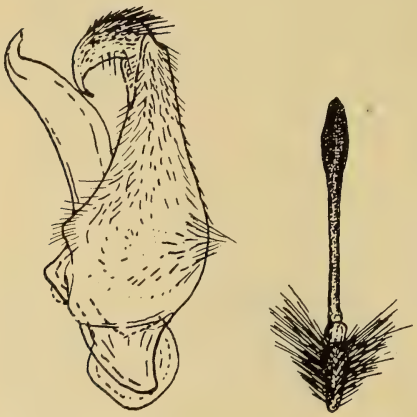
2 ♂♂ 1 ♀ *C. eremobia* n. sp.

(Syn. = *hirtipes* Bezz. nec Macq., p. 76, Ann. S. Afr. Mus., vol. xviii, 1921.)

Bezzi referred a ♂ and a ♀ of this species to Macquart's *hirtipes* (p. 109, Dipt. Exot., ii, 1840). These specimens, however, differ from Macquart's description in that the palps are not yellowish, the beard is not whitish and the posterior femora below, in ♂ at least, not predominantly white-haired. Moreover, this species is a Namaqualand form and not likely to have been collected or obtained by Serville. Macquart himself is not sure of the sex of his specimen and compared it with the ♂ of *pennipes* Wied., confusing the feathery pubescence on the hind tibiae of the latter with the white hairs on the hind femora of his *hirtipes*. As white hair on the hind femora is more common in the ♀♀ of several species, it is probable that *hirtipes* is a ♀ of a species with reddish tibiae.

Body black; face in both sexes extensively pale ochreous yellow or luteous, the head below, however, black, the vertex in the ♀-allotype with a small yellowish macula on each side; legs with the tibiae and tarsi yellowish, only the last tarsal joint black and the apical parts of the tibiae often slightly darkened; pubescence with the hairs in the facial brush short, dense, creamy whitish and with a distinct shorn-off appearance, with the hairs on frons, excepting only the shorter pubescent white hairs in front in ♂, a few intermixed hairs on antennal joint 1 above in ♂, more numerous ones below, the long hairs on palps, those on genae and all the hair on head below, those on propleural and prosternal parts, some on pleurae in ♂, the small

tuft below halteres in ♂, the hair on venter, those on front coxae and femora, on middle and hind legs in ♂ and some intermixed ones on middle femora and also on hind ones in ♀ as well as hairs on hind tibiae in both sexes black, with the hairs on mesopleurae, in the tuft below halteres and numerous intermixed ones on middle and hind femora in ♀ whitish, with the hair on ocellar tubercle sericeous whitish, that on body above comparatively dense, with a slight shorn-off appearance, straw-coloured yellowish to pale sericeous yellowish and with whitish sericeous gleams, that on sides of abdominal segment 1 and some intermixed ones on the other segments black in both sexes, some intermixed ones on venter being also whitish; wings almost hyaline, with a feeble milky white tinge in certain lights, slightly tinged yellowish in costal cell, first basal cell and base, with the veins, especially costal and first longitudinal, yellow, the others even very pale yellowish, with the alula narrow, but slightly broader and more developed than in the *nigripes*-series, with the opaquely whitish squamae white-fringed; halteres pale yellowish brown in ♂ and more yellowish in ♀, with the knobs entirely whitish in ♀ but with a slightly brownish infuscation above and below in ♂. *Head* with the coarser facets in slightly less than upper two-thirds of eyes in ♂ well marked off from the finer lower ones; antennae with joint 1 comparatively thickened and antennal joint 3 (text-fig. 222, *b* of ♀) slender, comparatively long, more than 2 times as long as 1 and 2 combined, the slender part long and the apical clavate part well marked off, more spear-blade shaped in ♀; head below with conspicuously dense and bristly hairs and fairly long hairs below base of proboscis and on palps, these hairs projecting forwards beyond facial brush; proboscis comparatively stoutish and short, about 3 mm. long. *Hypopygium* of ♂ as shown in text-fig. 222, *a*.



(*a*) (*b*)

Text-fig. 222.—(*a*) Side view of hypopygium of ♂ *Corsomyza eremobia* n. sp. (*b*) Antenna of ♀ of same species.

Types in the South African Museum.

Length of body: about 8½–9 mm.

Length of wing: about 8 mm.

Locality.—Namaqualand: P.N. (Port Nolloth) (Holotype); Port Nolloth (Lightfoot, Aug. 1890) (Allotype).

This species can be easily distinguished, from other species with yellow tibiae, by the short, dense and shorn-off facial brush and the characteristic black beard below and long forwardly projecting black hair at base of proboscis and buccal cavity and also by the slightly thickened first antennal joints.

9 ♀♀ *C. eremobia* var. *braunsii* n.

These specimens, in the absence of a ♂, may be considered only as a variety of the preceding species. Bezzi labelled 2 ♀♀, from Port Nolloth, as *hirtipes* Macq. From the allotype of *eremobia* s. str. they differ in being slightly smaller, with the face in front usually darker, often more brownish and less extensively luteous, with the pubescence on head and in facial brush distinctly less dense, less extensive and longer, more straw-coloured whitish and always with a few intermixed black hairs circumorally, with the vertex entirely black, with entirely or predominantly black hair on pleurae, pectus, on middle and hind coxae and femora, with more intermixed black hairs on sides of abdomen, also more straw-coloured whitish or sericeous white pubescence on body above and with the feeble milky whitish tinge of wings more evident. The two ♀♀, labelled by Bezzi, form a sort of transition stage in having luteous faces, more pale hairs on lower parts of mesopleurae, etc.

Type in the Transvaal Museum.

Length of body: about 6–7½ mm.

Length of wing: about 6–6½ mm.

Locality.—Namaqualand: Van Rhynsdorp (Brauns, Sept. 1928) (Type); Port Nolloth (Lightfoot, Aug. 1890 and 1889).

C. ruficornis Bezz.

(P. 79, Ann. S. Afr. Mus., vol. xviii, 1921.)

This single damaged ♂-specimen, fully described by Bezzi, is characterised by the comparatively sparse pubescence on head and body, the pubescence being entirely white on the body and legs, only the fine hairs on genae and frons being mauvish brown; antennae (now missing) have the third joint red according to Bezzi, its apical

part broadened, spatulate, slightly darkened and bilobate at the end; interocular space comparatively narrower than in other species; wings comparatively elongate in relation to body, with the alula very rudimentary; eyes with the coarser facets in upper two-thirds distinctly marked off from the finer ones in lower third. *Hypopygium* as shown in text-fig. 223.



TEXT - FIG. 223. — Side view of hypopygium of ♂ *Corsomyza ruficornis* Bezz.

Locality.—Rhodesia.

3 ♀♀ *C. karooana* n. sp.

Body black above; the frons shining dark castaneous; face, lower part of head, proboscis and pleurae dark brownish, the face being paler castaneous brown; antennal joints 1 and 2 and legs sienna brown to dark brownish; pubescence with a few hairs on ocellar tubercle, the sparse hairs in facial brush, some intermixed ones on antennal joint 1 above, some intermixed hairs on head below, tuft of longish mesopleural hairs in front of wing-bases, sparse ones on pleurae, the hairs on sides of abdomen at base, on extreme sides of the other segments, on venter, intermixed ones on front coxae and on middle and hind coxae and femora whitish, those on pleurae and legs more silvery whitish, with the sparse hairs on tubercle, frons, antennal joint 1 above and below, on genae, palps, fairly numerous ones on head below, on front coxae and femora, a few intermixed ones on middle femora and on hind tibiae as well as the hairs on last tergite and sternite black or very dark blackish brown, with the hair on body above also comparatively sparse, that on thorax and scutellum pale sericeous yellowish, slightly denser and distinctly longer than the very sparse sericeous yellowish to brassy ones on abdomen discally, those laterally on abdomen longer, denser and more white or whitish; wings greyish hyaline, becoming slightly yellowish towards base, the costal cell, first basal cell and base being more visibly yellowish, with the veins yellowish to yellowish brown, the costal and first longitudinal veins being strikingly yellowish, with the alula very vestigial and linear, scarcely evident and the opaquely whitish squamae white-fringed; halteres yellowish white and with white knobs. *Head* with antennal joint 3 about $1\frac{1}{2}$ times as long as 1 and 2 combined, as in *nigripes*, but the apical half more or less

gradually thickened, the thick part relatively more thickened than in *nigripes*, the base very slender; proboscis comparatively long, about 2½–3 mm. long, quite as long as head and thorax together.

Type in the Transvaal Museum.

Length of body: about 3½–4 mm.

Length of wing: about 4 mm.

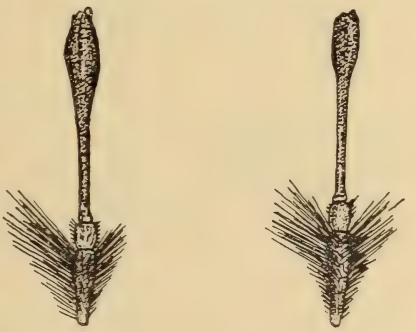
Locality.—S.E. Karoo: Willowmore (Brauns, 10/9/1921).

This small species is easily recognised by its *Megapalpus*-like appearance, comparatively sparse pubescence on head and body, sienna brown to dark brown legs, long proboscis and the shape of the third antennal joints.

2 ♀♀ *C. namana* n. sp.

(Syn. = *clavicornis* Bezz. nec Wied., p. 77, Ann. S. Afr. Mus., vol. xviii, 1921.)

One ♀ of this species was labelled by Bezzi as *clavicornis* Wied. It is, however, entirely different from the ♂-*clavicornis* of Bezzi, described in this paper as *oneilii* n. sp. and from the ♀ of *nigripes* described by Wiedemann as *clavicornis* (*see* under *nigripes* and *oneilii*).



(*a*) (*b*)

Text-fig. 224.—(*a*) Antenna of ♀ *Corsomyza namana* n. sp. (*b*) Antenna of ♀ *Corsomyza ancepsoides* n. sp.

Body black; face in front luteous to pale yellowish brown; palps brownish to blackish brown; legs very dark blackish brown; pubescence with the facial brush, hairs above and below antennal joint 1, on ocellar tubercle posteriorly and often some on head posteriorly white, with the hair on frons, palps, genae and head below, some on venter towards apex, on front coxae and femora, some intermixed ones on middle femora and also on hind tibiae black, that on pleurae, some intermixed ones on front femora, predominantly on middle and hind femora and coxae as well as on venter almost silvery white, with the pubesence on body above and in mesopleural tuft predominantly white, that on disc of thorax and scutellum with a slight straw-coloured yellowish tint and that towards apex of abdomen

above tending to be even more straw-coloured yellow; wings hyaline, only very faintly tinged yellowish towards base, the yellow being more evident in costal cell, first basal cell and base, with the veins pale yellowish, the alula rudimentary and indicated as a very narrow ledge, with the opaquely whitish squamae yellow-bordered and entirely white-fringed; halteres pale yellowish, with whitish knobs. *Head* with the pubescence on face dense and comparatively short, the interocular space comparatively narrow, distinctly narrower than length of combined antennal joints; antennal joint 3 (text-fig. 224, *a*) a little more than 2 times as long as 1 and 2 combined, with the thickened apical part more or less spindle-shaped as in ♂ of *bicolor*; proboscis about $2\frac{1}{2}$–$2\frac{2}{3}$ mm. long.

Type in the South African Museum.

Length of body: about 6–$6\frac{1}{2}$ mm.

Length of wing: about 6–$6\frac{1}{2}$ mm.

Locality.—Namaqualand: Port Nolloth (Lightfoot, Aug. 1890).

Recognised by its shortish white pubescence on body above and sides of thorax in front, on pleurae, in facial brush, venter and on middle and hind legs, by the spindle-shaped thickened apical part of antennal joint 3 and by the predominantly black hair on head below.

1 ♀ *C. ancepsoides* n. sp.

(Syn.=♀-*anceps* Bezz., p. 78, Ann. S. Afr. Mus., vol. xviii, 1921.)

This ♀ was referred to *anceps* Bezz. (♂ described on p. 106, The Bombyliidae of the Ethiopian Region, and which is doubtfully distinct from *nigripes*). Compared with Bezzi's description it does not agree with the ♂-*anceps*, and in view of the dissimilarity existing between the sexes, as well as the widely separated localities, it is advisable to describe this specimen as a separate species.

Body black; head above very dark shining blackish brown, the lower part, below antennae, more toffee brownish, the face in front pale yellowish brown; antennae, palps and legs dark reddish brown; pubescence with the facial brush yellow, with some intermixed black hairs circumorally and on lower part of face, with the hair on frons, intermixed ones on antennal joint 1 above and below, the hair on palps, genae and on head below, on pleurae, sides of abdominal segment 1, venter and on all the legs black, that on posterior part of ocellar tubercle and on body above pale yellow, that on abdomen slightly deeper, more golden yellow; wings hyaline, the costal cell, first basal cell and base being slightly yellowish, with the veins, especially the

costal and first longitudinal, pale yellowish, with the alula narrow and ledge-like, with the opaquely yellowish white squamae fringed with white; halteres yellowish, with dirty yellowish knobs which are slightly tinted brownish below. *Head* with antennal joint 3 (text-fig. 224, *b*) about 1½ times as long as 1 and 2 combined, the apical third clavate, well marked off from the slender basal two-thirds; proboscis comparatively stoutish, about 2 mm. long.

Type in the South African Museum.

Length of body: about 4½ mm.

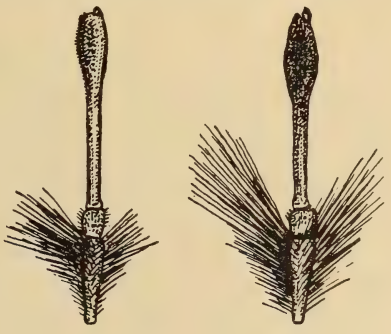
Length of wing: about 4 mm.

Locality.—Namaqualand: Port Nolloth (Lightfoot, Aug. 1890).

This ♀ resembles the ♂♂ of *minuscula* and *bicolor* more than any other species.

1 ♀ *C. capensis* n. sp.

Body, including antennae, face and legs, black; pubescence with the facial brush straw-coloured whitish, with the erect hairs on frons, genae, on antennal joint 1 below, on palps, predominantly on head below, some intermixed ones in mesopleural tuft, very numerous and densely intermixed ones on sides of abdomen from segment 2, intermixed ones on coxae, all on front femora below and numerous ones on middle femora in front and below apically, black, with those on posterior part of head below, sparsely on pleurae and pectus, sparsely on venter below, intermixed ones on coxae, numerous ones on middle femora below and predominantly on hind ones white, with the pubescence on body above straw-coloured on thorax, the mesopleural tuft slightly more yellowish in certain lights, that on disc of thorax and scutellum more sericeous yellowish, that on abdomen discally very sparse and short, straw-coloured, becoming more yellowish on sides of segment 1 and with longer, but comparatively sparse, black one laterally on the other segments; wings distinctly, though faintly, tinged yellowish, becoming distinctly deeper yellowish towards costal cell and base, with the veins brownish,



Text-fig. 225.—(*a*) Antenna of ♀ *Corsomyza capensis* n. sp. (*b*) Antenna of ♀ *Corsomyza campicola* n. sp.

but yellowish towards base, with the dark-margined, opaquely whitish squamae fringed with white; halteres pale brownish, with whitish knobs blackened below. *Head* with antennal joint 3 (text-fig. 225, *a*) a little more than 1½ times as long as 1 and 2 combined, distinctly clavate apically, the broadened apical part, however, not very broad, more or less fusiform, the fused terminal joints not very prominent; proboscis shortish and stout, about 1½ mm. long.

Type in the British Museum.

Length of body: about 5 mm.

Length of wing: about 4½ mm.

Locality.—S. Western Cape Province: Cape Peninsula; Cape Town to Cape Point (Simmonds, 11/1930).

This species has a marked resemblance to some white-haired forms of *nigripes*, but may at once be distinguished from any of these by the clubbed third antennal joints, short proboscis and the extensive black hair on sides of abdomen from segment 2 to apex and also by the more numerous black hairs on head below.

6 ♀♀ *C. campicola* n. sp.

Body, including legs, black; face in front obscure dark brownish; pubescence with the hairs on frons, in a tuft on antennal joint 1 above and a denser tuft below, on genae, the long ones on palps, on head below, lower parts of pleurae, intermixed ones on lower part of mesopleural tuft, intermixed ones on sides of abdomen, towards apex of venter, on front coxae and femora, intermixed ones on middle coxae and femora and intermixed ones on hind femora black, with the hairs in facial brush pale creamy yellowish or whitish, those on posterior part of head below (often absent), some intermixed ones on venter, some on middle coxae and femora and more numerous ones on hind coxae and femora white, with the pubescence on body above pale straw-coloured yellowish to pale sericeous yellowish, with that on posterior part of tubercle and on front part of thorax with more whitish gleams in certain lights, that on sides of thorax often tinted more yellowish, that on abdomen inclining to be more distinctly straw-coloured yellowish to sericeous and even deeper yellowish along sides in some ♀♀; wings greyish hyaline, very slightly sub-opaquely vitreous or with a very faint yellowish tinge towards costal and basal part, more evident at base, in costal cell and first basal cell, with the veins yellowish to yellowish brown, becoming darker and more brownish in apical and hind parts, with the alula very

vestigial, indicated only as a very narrow ledge, with the opaquely whitish and dark-margined squamae fringed with white; halteres yellowish brown to brownish, with dirty yellowish to whitish knobs, slightly infused with brown above. *Head* with the pubescence comparatively dense; interocular space comparatively broad, much broader than the combined length of antennal joints; antennal joint 3 (text-fig. 225, *b*) a little more than 1½ times, often nearly 2 times, as long as 1 and 2 combined, with the clavate apical part more or less spindle-shaped or elliptical, well marked off from the slender and rod-like basal part; proboscis comparatively short and stoutish, about 2 mm. long.

Type in the Transvaal Museum.

Length of body: about 5½–8 mm.

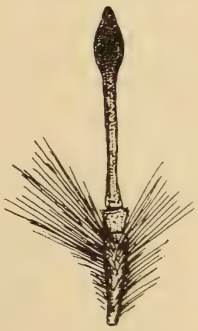
Length of wing: about 5⅓–7 mm.

Locality.—S.W. Cape Province: Malmesbury (Brauns, 5/12/26).

Characterised by the predominantly black hair on the body below, dark face, clavate third antennal joints and distinct and characteristic tuft of black hairs on antennal joint 1 above and below.

1 ♀ *C. fusicornis* n. sp.

This single ♀ may almost be considered as a variety of *campicola*. From *campicola* it differs in having some intermixed white hairs on front femora, entirely or predominantly white hairs on middle and hind coxae and femora, sparser black hairs on frons, fewer black ones on antennal joint 1 above, more numerous whitish and yellowish hairs on venter, predominantly whitish ones on lower parts of mesopleurae; halteres with the dirty yellowish knobs not darkened above; antennal joint 3 (text-fig. 226) with the thickened apical part more distinctly spear-blade shaped or spindle-shaped, the fused terminal joints not so prominently conspicuous and the slender basal part comparatively longer; proboscis slightly more slender and longer, about 3 mm. long.



Text-fig. 226. — Antenna of ♀ *Corsomyza fusicornis* n. sp.

Type in the Transvaal Museum.

Length of body: about 7 mm.

Length of wing: about 6½ mm.

Locality.—W. Cape Province: Clanwilliam (Brauns, Sept. 1928).

1 ♀ *C. dissimilis* n. sp.

Body, including face in front, black; femora black, but the tibiae and tarsi dark reddish brown; pubescence with the hairs on frons, above and below antennal joint 1, a few intermixed ones circumorally in facial brush, on genae, on palps and on head below, on venter, sides of abdomen above, discally on abdomen above on last 2 or 3 segments and on front coxae and femora black, with the hairs in facial brush straw-coloured, those on mesopleural and pleural parts, on middle and hind coxae and femora whitish, with the pubescence on body above comparatively sparse, that on thorax and scutellum straw-coloured whitish and denser than on abdomen, more sericeous yellowish on scutellum, the mesopleural tuft with white and longer hairs, that on abdomen above short and sparse, whitish, the sides with slightly longer black ones towards apex and also with distinct black ones discally above on last two segments at least; wings more distinctly tinged yellowish, becoming darker towards costal and basal parts, the costal cell, base and first basal cell being even more distinctly yellowish, with the veins yellowish, becoming more brownish to dark brownish towards the apical and hind parts, with the alula narrow and ledge-like and with the dark-bordered and opaquely whitish squamae fringed with white; halteres pale yellowish brown, with dirty yellowish knobs. *Head* with a faint indication of being transversely depressed across frons, but not to the same extent as in *longipalpis* and *depressifrons*; interocular space on vertex comparatively much narrower than in other species, distinctly narrower than the length of antennal joints combined; antennal joint 3 about 2 times as long as 1 and 2 combined, the apical part distinctly ovately clavate as in *capensis* (cf. text-fig. 225, *a*), but more distinctly ovate; proboscis about $2\frac{1}{2}$ mm. long.

Type in the Transvaal Museum.

Length of body: about 7 mm.

Length of wing: about 6 mm.

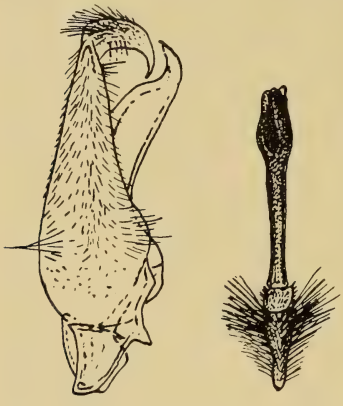
Locality.—Namaqualand: Van Rhynsdorp (Brauns, Sept. 1928).

Easily distinguished from other species by its comparatively sparse pubescence above, especially on abdomen above, the presence of distinct, short, black hairs discally above on abdomen towards apex, the distinctly yellowish-tinged wings and the dark reddish brown tibiae and tarsi.

3 ♂♂ 2 ♀♀ *C. tricellulata* n. sp.

Body, including femora, black; palps, tibiae and basal joints of tarsi pale brownish to dark brownish, the front tibiae often darkened and the apices of all the tibiae often also slightly darkened, with the last 2 or 3 tarsal joints always more or less blackened; face toward genae on each side with a large elongate yellow spot in ♀♀ and with a darker, more obscure, brownish one in ♂♂, the face itself in front, at base of buccal cavity, more darkly obscure brownish in both sexes; pubescence with the facial brush dense, its hairs as well as the hair on head below, on palps and all the hair on body below, sides of abdomen and on legs frosty or chalky white, the facial brush in ♂♂ often inclining slightly to creamy whitish and some intermixed hairs on front femora, towards apex below, dark or blackish, with some hairs on sides of vertex, hairs on frons in both sexes, on the genae in the ♂♂ and also a few laterally on head below in ♂♂ and some isolated ones on genae in ♀♀ black, with the hairs transversely across middle of frons, just behind white hair on front part of frons, and the hairs on antennal joint 1 above and below and often on ocellar tubercle posteriorly yellowish in ♀♀, paler and more creamy yellowish in ♂♂, with the pubescence on body above, from side, pale straw-coloured yellowish and with sericeous white gleams on thorax in ♂♂, becoming more sericeous yellowish on scutellum and more distinctly whitish in mesopleural tuft, that on abdomen above sericeous yellowish in basal half in ♂♂, becoming paler and distinctly white towards apex and along sides, with the short ones on occiput in ♀♀ golden yellowish, that on thorax in ♀♀ golden yellow on disc and scutellum, becoming white anterolaterally above wings and in mesopleural tuft, that on abdomen in ♀♀ much shorter and sparser, long only on sides of segment 1, sericeous yellow to golden yellowish discally, paler and more white apically and laterally; spicules on tibiae and tarsi black; wings vitreous, with a faint subopaque milky whitish tinge, the costal cell, base of marginal cell, basal half of first basal cell and base more subopaquely pale yellowish white to very faintly yellowish, with the veins yellowish brown, becoming darker in apical and posterior parts, and the costal, first and fourth longitudinal veins conspicuously pale yellowish, with 3 submarginal cells constantly present, with the alula reduced, narrow but distinct, and with the opaquely whitish squamae fringed with white; halteres yellowish, with the knobs chocolate brown above and below in ♂♂, entirely whitish in ♀♀. *Head* with the coarser facets in upper two-thirds of eyes in ♂♂ well

marked off from finer lower ones; antennae with joint 3 (text-fig. 227, *b* of ♀) about 2 times as long as 1 and 2 combined, somewhat laterally compressed, the basal part narrow and slender, and the apical broadened clavate part rapidly broadened and with an elongate broadish depression on the inner side, with the fused terminal joints prominent as a short, projecting, lobe-like prominence, especially in ♀♀; proboscis about 2½–4 mm. long. *Thorax* with comparatively denser pubescence on pleural parts than in any other species. *Hypopygium* of ♂ (text-fig. 227, *a*) with somewhat fine and dense pubescence on basal parts, that in neck region denser and that along lower margin and a few dorsally longer; basal strut comparatively small.



(*a*) (*b*)

Text-fig. 227. — (*a*) Side view of hypopygium of ♂ *Corsomyza tricellulata* n. sp. (*b*) Antenna of ♀ of same species.

Holotype in the Transvaal Museum, allotype in the South African Museum and a paratype in the British Museum.

Length of body: about 6–10 mm.

Length of wing: about 6–8 mm.

Locality. — W. Cape Province: Clanwilliam (Brauns, Sept. 1928) (Types). S.W. Cape Province: Cape Flats (Simmonds, 13/11/30).

Another ♂-specimen, from Nieuwoudtville (Brauns, Aug. 1928), may be considered as a form of this species, differing from the typical ♂ in having the erect hairs on vertex and ocellar tubercle yellow, those on basal and front parts of frons also predominantly yellow, the dark ones on frons being much fewer, the black hairs on genae continuous with those on frons by a row of much shorter and more indistinct black hairs and pubescence on disc of thorax, scutellum and abdomen above distinctly deeper sericeous yellow like that of the typical ♀. This species is easily distinguished from all others by having 3 submarginal cells normally present in all the specimens, in having very dense frosty or chalky white pubescence on entire body below, excepting only a few intermixed dark hairs towards apex of front femora.

The presence of 3 submarginal cells may cause confusion with the genus *Callynthrophora* Schin. In the latter genus, however, the frons in both sexes is broader anteriorly, more tumid, the antennae are

inserted lower down and immediately above the buccal cavity, the proboscis is very short, the first antennal joints are very short and more thickened, and antennal joint 2 has a fine, dense coat of whitish, spinule-like pubescence which in certain lights gives it a silvery white appearance, etc.

1 ♀ *C. ochrostoma* n. sp.

Practically the entire frons, entire face and genae, head below and a band extending from head below along hind margins of eyes to vertex, nearly continuous again on frons and then for a little distance down the occiput on each side, the posterior calli on thorax and the entire scutellum very pale ochreous yellow, becoming pale orange yellow along margins of eyes; vertex shining black; greater part of occiput, front part of thorax, pleurae, pectus and abdomen blackish, the disc of thorax and the pleurae being more blackish brown, the coxae inclining to be more black and the undersurfaces of the femora to be slightly paler and more reddish brown, with the tibiae and tarsi pale reddish yellow, the front ones being darker and more brownish, with the last 3 or 4 tarsal joints blackish, the claws reddish brown but the apices black; pubescence on body above dense on thorax, composed of dense depressed and also dense erect hairs, those on scutellum dense and erect, those on abdomen composed of longish and erect ones, dense laterally, and of short depressed ones in punctures, denser discally and towards apex, with the pubescence on body above and below entirely yellow, black hairs being entirely absent, those on abdomen discally slightly more sericeous yellow, with the dense and somewhat matted pubescence on thorax and that discally above golden yellowish, with the pubescent hairs and spine-like spicules on tibiae also golden yellow, the spines slightly tinted reddish golden and only the spicules on apical tarsal joints darker and more dark brownish; wings slightly tinged yellowish, the yellow more distinct towards costal and basal parts, the costal cell, basal half of first basal cell, and base being even more distinctly yellowish, with the costal, first longitudinal, third vein and veins towards base very pale yellowish and almost pale orange yellowish, the parts of veins towards apex and hind border darker and more brownish, with the whitish opaque squamae fringed with golden yellow hairs, with the costal cell scarcely dilated or broadened at about the middle as in all other species, with the first posterior cell broadly opening on hind border, with the anal cell comparatively broadly opening on border

of wing and not acute or sessile as in other species, with the axillary lobe narrower than anal cell and somewhat more reduced than in any other species, and the alula reduced and narrow; halteres pale yellowish brown, with very pale lemon yellowish knobs. *Head* with the interocular space on vertex about 3 times as broad as broad tubercle; ocellar tubercle slightly, but distinctly, more elevated and prominent than in other species; antennae with joint 1 very short and only about 1½ times as long as joint 2 (joint 3 unfortunately missing in this specimen); proboscis about 2 mm. long, with the labella short, shorter than in other species; palps long, quite half as long as proboscis, pubescent and without separately visible joints. *Legs* also without any spines on femora below as in other species of *Corsomyza*; tibiae with pubescent hairs longer and denser on hind ones, the front and middle ones with scarcely stouter spine-like spicules, only a lower outer row being present, the hind ones with a lower inner and outer and inner upper row of stouter, more bristle-like spines especially towards the apex, with the crown of apical spines below on all the tibiae distinctly longer and more developed than in any other species; tarsi with a series of more than 3 hairs across apical margin above on last joint and with the 3 most prominent ones very much shorter and more inconspicuous than in any other species of *Corsomyza*; claws only gradually and slightly curved downwards apically, not sickle-shaped as in other species and the pulvilli narrower and less developed, just extending a little beyond middle of claws.

Type in the South African Museum.

Length of body: about 8 mm.

Length of wing: about 6½ mm.

Locality.—Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931).

This species is easily recognised by its entirely golden yellow pubescence, very pale ochreous or luteous yellow head in front, yellow margins behind the eyes and pale ochreous yellow scutellum, open anal cell, only gradually curved claws, etc. There is no doubt that this somewhat damaged ♀ differs from all the other known species of *Corsomyza* in certain salient features. Such differentiating characters, as a scarcely broadened costal cell, a distinctly widely open anal cell, more reduced axillary cell, more distinctly raised or elevated ocellar tubercle, shorter first antennal joints, shorter labella of the proboscis, distinctly longer apical spines on tibiae, presence of a series of more than 3 bristly hairs across apical margin of last tarsal joint of which the three longest ones are distinctly very much shorter than in other species, and the less curved claws,

necessitate the creation of a new genus or at least a new subgenus. In view, however, of the fact that I have only a single somewhat damaged ♀-specimen, I prefer to retain this species provisionally in the genus *Corsomyza* until more specimens and also individuals of the other sex are available.

Described species not seen by me.

The only species which I am not able to determine or which is not present in any of the collections before me is *C. hirtipes* Macq. (p. 109, Dipt. Exot., ii, 1840).

Gen. *Megapalpus* Macq.

(Macquart, Suit. à Buffon, i, 394, 13, 1834; p. 111, Dipt. Exot., ii, 1840; Bezzi, p. 85, Ann. S. Afr. Mus., vol. xviii, 1921. Syn. = *Phthiria* Wied. in part nec Meigen, p. 356, Aussereurop. Zweifl. Ins., i, 1828; syn. = *Dasypalpus* Macq., p. 112, Dipt. Exot., ii, 1840.)

This genus, first erected by Macquart in 1834, was subsequently sunk as a synonym of the genus *Phthiria* Meig. by Kertész in his Catalogus Dipterorum, vol. v, 1909 and revived again by Bezzi (p. 85, loc. cit.) in 1921. The genus is so close to *Corsomyza* Wied. that it may easily be mistaken for it in the ♀-sex. Notwithstanding the fanciful representations of Macquart (pp. 111 and 112, Dipt. Exot., ii, 1840, Tab. XI, figs. 2 and 3) there is no essential difference between *Megapalpus* and *Dasypalpus*, to the latter of which Macquart referred the ♀-*capensis* Wied. (p. 356, Aussereurop. Zweifl. Ins., i, 1828). *Megapalpus* and *Hyperusia* Bezz. (*see* below), on the other hand, are also almost inseparable generically in the ♀-sex.

The generic characters of *Megapalpus* are as follows:—

Body with comparatively sparse and short, erect and depressed pubescence above, even on head and thorax in ♀♀, but often with longer erect ones and no depressed pubescence on thorax and abdomen in ♂♂, the pleurae almost entirely bare, smooth and shining, even the femora with few and sparse hairs, fewer in ♀♀. *Head* with the interocular space on vertex broad in both sexes, scarcely narrower in ♂♂; frons also broad, the inner margins of eyes being parallel or subparallel, not diverging or scarcely diverging down the face in both sexes, with the head below about as broad as across vertex above, with the frons and face shining, the erect hairs on vertex, frons and face sparse, longer and denser in ♂♂, but with no dense

facial brush even in ♂♂; buccal rim, especially above, prominent and protruding, spout-like and slightly more so in ♀♀, with the genae very much narrower than in *Corsomyza*; antennae (text-fig. 228, *a* and *b*) inserted a little distance apart, with joint 1 rod-like, not thickened, joint 2 small and nodular, joint 3 somewhat laterally compressed, almost rod-like or gradually broadened from base, broader and sometimes more distinctly so in some ♀♀, with the apex appearing notched; eyes comparatively large and globular in both sexes, the facets of equal size in both sexes; palps slender, long, even very long and projecting, apparently single-jointed, no separate joints being visible, pubescent; proboscis comparatively long or very long in relation to body. *Thorax* with a tuft of longer hairs on mesopleuron in front of wing-bases and with a distinct, stoutish, though shortish, macrochaetal bristle in front of wing-bases on each side; scutellum with more bristly and longer hairs than on thorax, longer in ♂♂. *Wings* with only 2 submarginal cells, the costal cell also slightly broadened at about middle as in *Corsomyza*, the first posterior cell widely open, the discal cross vein beyond middle of discoidal cell, the anal cell acute apically and provided with a short apical stalk or sessile or even widely opening on hind border, with the alula reduced, narrow and ledge-like, the basal comb absent. *Abdomen* with the last sternite in ♂♂ notched at middle apically. *Legs* without any spines on femora below; tibiae with the spicules much reduced, represented by only an outer lower row on front ones, one or two rows on middle tibiae in addition to hairs and with about 2 rows of insignificant ones, in addition to the sparse hairs, on hind ones of which those in outer lower row are more distinct, especially in ♀♀; claws and pulvilli well developed and the hairs across apical margin above on last tarsal joints absent, inconspicuous or at least much less developed than in *Corsomyza*. *Hypopygium* of ♂♂ (text-fig. 229) like that of *Corsomyza* (cf. text-figs. 214–227), the basal parts with a posterior lobe; the beaked apical joints laterally compressed, acutely pointed apically and with a crest of spine-like, bristly hairs along their dorsal (upper) parts; aedeagus much like that of *Corsomyza*-species, without any ventral aedeagal process.

From *Corsomyza* this genus differs in having sparser pubescence, no distinct facial brush, no distinctly and rapidly diverging inner margins of eyes, much narrower genae, broader interocular space in ♂♂, more sharply edge-like or prominent buccal rim, more widely separated antennae, larger and more globular eyes in both sexes, relatively broader wings, barer pleural regions, absence of a distinct

tuft of hairs below halteres, presence of a distinct, stoutish, macrochaetal bristle in front of wing-bases, much sparser hairs on legs, more feebly developed spicules on tibiae and absence of 3 very long bristly hairs apically on last tarsal joints.

Only two species of this genus are known and are separated as follows:—

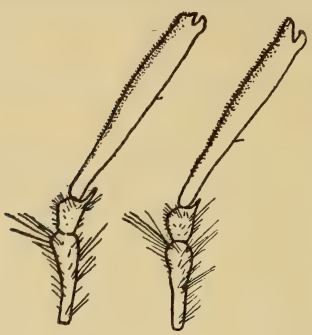
1. (2) Anal cell more often very acute apically, closed and very shortly stalked or sessile, not very broadly opening on hind border of wings (when opening, other characters do not conform); proboscis comparatively shorter, about 2⅓ mm. long to a maximum of 4 mm.; palps shorter, rarely 1 mm. long; buccal rim slightly thinner; antennal joint 3 (text-fig. 228, *a*) in ♀♀ often distinctly more broadened before apex and the apical notch less deep and distinct; interocular space slightly broader and frons distinctly less depressed in both sexes and without any conspicuous, or with only very inconspicuous, silvery whitish, scale-like hairs in a tuft on each side; sides of face and genae with predominantly or entirely black hair and also with some or more numerous black hairs below in mesopleural tuft; ♂♂ often with a tendency to be shining bluish metallic, with longer and slightly sparser hairs on body above and without any or with only very sparse, fine, depressed, golden pubescence above, especially on abdomen; abdomen, in addition to golden depressed pubescence and shortish or longish erect black hairs, without any or with much less conspicuous fine white hairs
   ♂ ♀ *nitidus* Macq. (p. 761).
2. (1) Anal cell not very, or never, acute apically and opening comparatively widely on hind border; proboscis comparatively longer, about 4–5 mm. long; palps longer, more conspicuously projecting, about 1 mm. long or even slightly longer; buccal rim slightly thicker; antennal joint 3 (text-fig. 228, *b*) more rod-like in both sexes, the apical notch sometimes deeper and more distinct; interocular space distinctly narrower and frons distinctly more depressed and also with a more conspicuous tuft of silvery white hairs on each side; sides of face and especially genae with entirely or predominantly whitish or silvery hairs and without any or much fewer dark ones in mesopleural tuft; ♂♂ like ♀♀ shining black, with denser and shorter hairs on body above and especially on abdomen in ♂♂, more like ♀♀, and also with much denser depressed golden pubescence in ♂; abdomen in both sexes with more distinct and more conspicuous, short, fine, white hairs, especially on sides when seen from sides . . . . . ♂ ♀ *capensis* (Wied.) (p. 763).

M. nitidus Macq.

(P. 112, Dipt. Exot., ii, 1840, Tab. XI, fig. 2; Bezzi, p. 86, Ann. S. Afr. Mus., vol. xviii, 1921, Pl. II, fig. 16.)

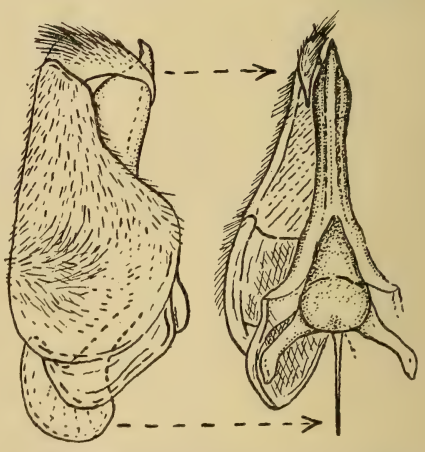
Characters of specific importance in this species are: Pubescence in ♂♂ comparatively long and sparse, composed of long black hairs

on head, thorax and abdomen, without any or with only very sparse fine depressed yellowish or golden pubescence on abdomen above; ♀♀ with shorter and slightly denser erect hairs and very dense pale golden depressed pubescence on body above and in both sexes without very dense whitish hairs on abdomen; hair on frons predominantly black and with only a few sparse silvery whitish hairs on each side, the hairs on face and especially genae entirely or predominantly black, with a few black hairs intermixed in mesopleural tuft as well, with the sparse hairs on coxae and bases of femora and at base of abdomen, in ♂♂ especially, whitish, the rest of the hair on femora below black. *Head* with the interocular space on vertex in ♂♂ only very slightly narrower than in ♀♀, without any hairs on face in front above the projecting buccal rim; antennae with joint 1 slender, rod-like, with some longish black hairs, the apical ones below longer and more conspicuous, with joint 2 sometimes slightly and sharply produced apically above, with joint 3 (text-fig. 228, *a*, left one of ♀ from side), about $1\frac{1}{2}$, or a little more, times as long as 1 and 2 combined, rod-like, usually in ♀♀ becoming gradually broader towards apex, being broadest beyond middle in some ♀♀, more or less sub-groove-like depressed along inner side, the apex slightly notched; palps blackish brown to black, distinctly hairy. *Wings* comparatively short and broad, with a faint smoky tinge, more pronounced in some ♀♀, with the veins dark brownish to blackish brown, the squamae opaquely whitish and fringed with white hairs; halteres brown, with very dark brownish to blackish knobs in both sexes.



(*a*) (*b*)

Text-fig. 228.—(*a*) Antenna of ♀ *Megapalpus nitidus* Macq. (*b*) Of ♀ *Megapalpus capensis* (Wied.).



Text-fig. 229.—Side view and half of ventral view of hypopygium of ♂ *Megapalpus nitidus* Macq.

Legs dark blackish brown to black, with the dense spinule-like hairs on tibiae below conspicuous, especially in ♀♀. *Hypopygium* of ♂ (text-fig. 229).

Length of body: about 3½–6 mm.

Length of wing: about 3–4½ mm.

Locality.—S. Western Cape Province, W. Cape Province, S.W. Karoo, Namaqualand and East Cape Province and Karoo. (In the Transvaal and South African Museums.)

Being fairly widely distributed in the Cape Province, it shows regional or local forms. In the series before me the ♀-specimens from Cape Town differ from those from Namaqualand in having the fine depressed or semi-depressed pubescence on body above, especially on the abdomen, darker, even blackish, not brassy or sericeous yellowish. The anal cell is also variable in regard to its acute apex, sometimes being acute and distinctly provided with a short stalk, sometimes sessile on hind border and in some specimens actually opening narrowly on the hind border as in *capensis* (Wied.).

M. capensis (Wied.).

(Wiedemann, p. 356, Aussereurop. Zweifl. Ins., i, 1828 as *Phthiria*; Macquart, p. 112, Dipt. Exot., ii, 1840, Tab. XI, fig. 3 as *Dasypalpus*; Paramonow, p. 121, Trav. Mus. Zool. Kiev, No. 11, 1931.)

Wiedemann's description of *Phthiria capensis* is not complete enough to state with absolute certainty whether he had before him a specimen of *nitidus* or one of the species dealt with here. However, after carefully comparing Wiedemann and Paramonow's descriptions with some ♂♂ and ♀♀, chiefly from the British Museum, there appears little doubt that these specimens agree more with their descriptions of *capensis* than with *nitidus*. Some of the chief characters separating them from *nitidus* are given in the key. The species is characterised by the constantly and comparatively widely open anal cell, which is never acute and closed or stalked apically; the wings themselves, as in *nitidus*, are tinged slightly cinereous or smoky; integument of body shining black even in ♂♂; proboscis is markedly long and slender, usually 4–5 mm.; palps comparatively very long, usually not less than 1 mm. long, projecting conspicuously and covered with black hairs; interocular space is slightly narrower than in *nitidus*, but the frons is distinctly more depressed and also with a more conspicuous tuft of silvery white hairs on each side; antennal joint 3 (text-fig.

228, *b*, left one from outer side (♀)); hair on head in front distinctly more whitish, the hairs on antennae, sides of face and on genae entirely or predominantly whitish like those on head below; pubescence on body above short in both sexes, that on abdomen in ♂♂ being slightly longer but shorter than in ♂-*nitidus*, with the fine depressed scale-like pubescence above and on abdomen brassy or golden in both sexes, with very fine, erect, whitish hairs on abdomen in addition to the erect black hairs, especially on sides, with the tuft of hairs on mesopleuron mainly whitish or creamy and without any distinct or conspicuous black intermixed ones as in *nitidus* and with the hairs across apical margin of last tarsal joint above slightly longer and more distinct than in *nitidus*, and sometimes with 3 distinctly longer ones present. *Hypopygium* of ♂ scarcely different from that of *nitidus* (cf. text-fig. 229), with the apices of beaked apical joints less rapidly bent downwards.

In the British and South African Museums.

Length of body: about 3½–5 mm.

Length of wing: about 3–4½ mm.

Locality.—S. and W. Cape Province: Viljoen's Pass, Michell's Pass (Simmonds), Ceres and Montagu (Turner).

Gen. *Hyperusia* Bezz.

(Bezzi, p. 84, Ann. S. Afr. Mus., vol. xviii, 1921; p. 107, The Bombyliidae of the Ethiopian Region, 1924.)

The chief characters distinguishing species of *Hyperusia*, as labelled by Bezzi in the South African Museum, from *Megapalpus* Macq. are the non-prominent buccal rim which does not distinctly and conspicuously protrude forwards, the insertion of the antennae which is much nearer upper part of buccal rim, the less widely separated and usually much shorter first antennal joints, the relatively shorter proboscis (not exceeding 2½ mm. in known species) which is also markedly thickened basally, the less slender and often shorter palps, the much narrower interocular space in ♂♂, which, as in *Corsomyza*, is only about as broad as ocellar tubercle, the division of the eyes in ♂♂ into upper coarser and lower finer facets, the more depressed frons in ♀♀, the comparatively denser pubescence on body above even in ♀♀, the absence of a stoutish macrochaetal bristle or bristles on each side in front of wing-bases, the comparatively longer wings, with a more developed and more distinctly lobe-like alula, very much broader, more lobe-like and subangularly rounded axillary lobe, the

more numerous hairs on femora below even in ♀♀ and the presence of 3 longish, apical hairs across apical margin of last tarsal joint as in *Corsomyza*. The last sternite of ♂♂ is notched at middle apically as in *Corsomyza* and *Megapalpus*. The *hypopygium* of the ♂♂ (text-figs. 230, 231 and 233) very much like that of *Corsomyza* (cf. text-figs. 214–227), the bases of basal parts also with a rounded lobe-like part; beaked apical joints similar, much laterally compressed, claw-like and with the apex acute and curved downwards; aedeagus similarly shaped and also without a ventral process ending basally above middle part in a lobe-like process (shown in dotted outline in text-fig. 230, *a*); basal strut more or less racket-shaped and its dorsal margin deeply or angularly incised towards apex.

Key to the known South African species.

Known ♂♂.

1. (4) Antennal joint 3 predominantly or entirely yellowish or yellowish red . 2.
2. (3) Claws rapidly curved downwards slightly beyond middle, thus normally sickle-shaped; antennal joint 3 (text-fig. 230, *c*) more slender, with less than the apical half gradually thickened; antennal joint 2 with the upper apical part not very sharply produced and antennal joint 1 about 2 times as long as 2; proboscis more slender and longer, about 2–2½ mm. long; wings with the hind margin at axillary lobe more prominent, angular and rectangularly rounded; halteres with the knobs entirely dirty yellowish; tibiae paler, more yellowish or very pale yellowish brown . . . . . *muscoides* n. sp. (p. 767). (Syn. = *minor* Bezz. in part.)
3. (2) Claws markedly sickle-shaped, broadly U-shaped, curved downwards almost at right angles at middle; antennal joint 3 (text-fig. 231, *c*) distinctly stouter and sometimes slightly shorter, with the apical half more rapidly thickened, the thickened or clavate part roughly spindle-shaped, being broadest much before apex; antennal joint 2 with the upper apical part more acutely pointed, and antennal joint 1 shorter and only about 1½ times as long as 2; proboscis shorter, distinctly stouter and thicker, only about 1½ mm. long; wings with the posterior basal part or angle at axillary lobe more lobe-like and rounded, less rectangularly prominent; halteres with the almost white knobs blackened above and below; tibiae darker and more brownish . . *soror* Bezz. (p. 769).
4. (1) Antennal joint 3 entirely dark or black . . . . . 5.
5. (6) Antennal joint 3 (text-fig. 233, *d*) distinctly less than 3 times as long as 1 and 2 combined, much thicker and stouter, the base broad and from there gradually broadened apically; proboscis much shorter, about 1½–2 mm. long; palps slightly broadened apically, and shorter than 1 mm.; frons with a distinct central furrow evident; wings entirely with a more distinct milky whitish tint, the anal cell closed apically and shortly stalked, with the discal cross vein only a little beyond middle

of discoidal cell at more than the apical third; knobs of halteres not distinctly darkened below; fine depressed pubescence, on abdomen above especially, sericeous yellowish, and hair on last tibiae entirely or predominantly whitish . . . *transvaalensis* n. sp. (p. 772).

6. (5) Antennal joint 3 (text-fig. 233, *e*) quite, or nearly, 3 times as long as 1 and 2 combined, the basal half distinctly more slender, broadest a little before apex; proboscis distinctly longer, about 3 mm. long and also comparatively stouter towards base; palps more slender and longer, about 1 mm. long; frons without a distinct central furrow; wings distinctly more hyaline, the faint milky white only distinctly evident towards base, with the anal cell comparatively broadly opening on hind border, and with the discal cross vein much beyond middle, at about apical fourth, of discoidal cell; knobs of halteres darkened or blackened below; fine depressed pubescence on abdomen above silvery white and bristly hairs on hind tibiae, on outer side, predominantly dark

nivea Hesse (p. 773).

Known ♀♀.

1. (6) Antennal joint 3 predominantly or entirely yellowish or yellowish red . 2.
2. (5) Face in front on each side of buccal rim dark or black like rest of head in front, and not yellow or reddish yellow; interocular space narrower, less than 3 times as broad as tubercle; hairs on head below, on palps and at least on middle and hind femora and especially hind tibiae, entirely or predominantly white or whitish; antennal joint 3 usually comparatively less broad, or at least broadest nearer apex, not markedly spindle-shaped; anal cell closed apically or tending to be more closed or sessile on hind border of wings . . . . . 3.
3. (4) Claws normally sickle-shaped, curved downwards slightly beyond middle and not sharply at middle; antennal joint 3 (text-fig. 230, *b*) more slender, the basal half at least slender and apical half broadest some distance before apex and joint 1 at least 2 times as long as 2; proboscis much longer, about 2–2½ mm. long; wings with the posterior basal angle at axillary lobe more rectangularly prominent, the anal cell sessile or very narrowly opening on hind border; tibiae paler, pale yellowish to very pale yellowish brown; palps and head below with entirely white hair, and the depressed pubescence on head and body above distinctly much denser . . . . . *muscoides* n. sp. (p. 767).
4. (3) Claws markedly sickle-shaped, very rapidly curved downwards, almost at right angles, at middle; antennal joint 3 (text-fig. 231, *b*) much stouter and plumper, rapidly broadening from base, and joint 1 only about 1½ times as long as 2; proboscis comparatively very much shorter, less than 2 mm. long; wings with the posterior basal angle at axillary lobe more rounded, the anal cell more acute apically and provided with a very short stalk; tibiae distinctly darker brownish to very dark brownish; palps and head below with some dark hairs intermixed and the depressed pubescence on head and body above sparser . . *soror* Bezz. (p. 769).
5. (2) Face in front, especially on each side below antennal insertions, with a distinct diffuse yellowish spot or diffusely yellowish red, contrasting with

the dark or black rest of head in front; interocular space slightly broader, a little more than 3 times as broad as tubercle; hairs on head below, on palps and on femora and tibiae, entirely dark or black; antennal joint 3 (text-fig. 232) markedly broad and flattened, spindle-shaped and broadest at or near middle; anal cell tending to be constantly broadly open on hind border of wings . . . . . *minor* Bezz. (p. 771).

6. (1) Antennal joint 3 entirely dark or black . . . . . 7.

7. (8) Head predominantly black, a yellowish, often obscure or absent, spot being found only on face on each side of antennal insertions, the first and second antennal joints black; antennal joint 3 (text-fig. 233, *c*) becoming gradually broader apically, broadest just before apex; proboscis shorter, about 1½–2 mm. long; hairs on ocellar tubercle, frons, face, and head below anteriorly silvery whitish, only some hairs on sides of vertex, on palps, and on posterior part of head below blackish; hair on front coxae and femora and on middle femora in front entirely or predominantly black; scutellum entirely black like rest of body; smaller species, about 4–6 mm. long, with a wing-length of about 4–5½ mm. long . . . . . *transvaalensis* n. sp. (p. 772).

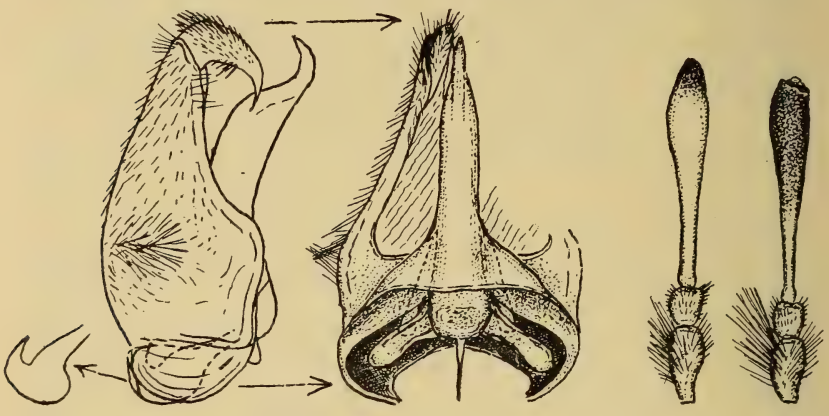
8. (7) Head with a small spot on occiput, frons in front and entire face and genae yellow, the first and second antennal joints also yellow; antennal joint 3 (*see* fig. 7, p. 109, The Bombyliidae of the Ethiopian Region, 1924, by Bezzi) not much broader apically than basally, less club-shaped; proboscis longer, about 3 mm. long; hairs on ocellar tubercle and vertex pale yellowish, those on posterior part of frons and on head below dark; hair on femora dark grey; scutellum with a pair of transversely elongate ochreous rufous spots and posterior calli and humeral angles of thorax brownish red; larger species, about 9 mm. long, with a wing-length of about 8·2 mm. . . . *luteifacies* Bezz. (ex. descr.) (p. 774).

1 ♂ 5 ♀♀ *H. muscoides* n. sp.

(Syn. = *minor* Bezz. in part, p. 473, Ann. S. Afr. Mus., vol. xviii, 1921.)

Body, including face in front, black, with the frons, face, genae and head below shining black; antennal joint 3, excluding darkened clavate part apically in ♂ or extreme apex in ♀, tibiae and tarsi pale ochreous yellow to reddish yellow, only the last 1 or 2 tarsal joints and apices of claws black; short, fine and erect pubescence on head, body above and below and on legs in ♂ entirely silvery whitish, the fine depressed pubescence on abdomen also silvery whitish; in ♀ the shorter and sparser erect pubescence on head and thorax, the slightly longer tuft in front of wings, the much shorter sparse ones on abdomen above, more densely on sides and the hairs on legs white to silvery whitish, the fine depressed pubescence in ♀♀ whitish in front, more pale yellowish on disc of thorax and more brassy yellowish and denser on abdomen, denser towards apex and also more silvery

whitish on sides of abdomen and on venter; wings vitreous hyaline, with a faint but distinct milky whitish tint, the costal cell and base very slightly more subopaquely whitish or very pale yellowish white, the veins pale yellowish, the anal cell acute apically and very shortly stalked, sessile or only very narrowly open on hind border, the axillary lobe very well developed, very broad and lobate, almost rectangularly rounded, the whitishly opaque squamae fringed with white hairs; halteres pale yellowish brown, with dirty yellowish to almost whitish



TEXT-FIG 230.—(*a*) Side view and greater part of ventral view of hypopygium of ♂ *Hyperusia muscoides* n. sp. (*b*) Antenna of ♀ *Hyperusia muscoides* n. sp. (*c*) Antenna of ♂ *Hyperusia muscoides* n. sp.

knobs. *Head* with the interocular space in ♂ above as wide as ocellar tubercle, a little less than 3 times as broad as tubercle in ♀♀; frons more or less transversely depressed at about middle in ♀♀, more convex in ♂ and with a distinct central furrow in basal half in ♂; eyes in ♂ with the coarser facets in upper half marked off from finer ones in lower half; antennae slightly longer in ♀♀, with joint 1 about 2, or a little more than 2, times as long as 2, joint 2 not very sharply produced apically above, with joint 3 (text-fig. 230, *b* and *c*, ♀ left and ♂ right and outer side of left joints) more slender in ♂, becoming gradually thickened or clavate apically, stouter in ♀♀, the basal half being less slender, broadest at about the apical fourth and narrowed again apically; proboscis about 2–2½ mm. long. *Legs* with the claws normally sickle-shaped, rapidly curved downwards a little beyond middle. *Hypopygium* of ♂ (text-fig. 230, *a*).

Types in the South African Museum.

Length of body: about 4½–6 mm.

Length of wing: about 4½–5 mm.

Locality.—S.W. Africa: Ovamboland; Mafa (Barnard, Feb. 1921) (Types): N. Damaraland: Tsumeb (Barnard, Feb. 1921).

Easily recognised by the rectangularly prominent axillary lobe, the entirely black face in ♀♀, the reddish third antennal joints, entirely silvery whitish pubescence on body, etc. The holotype-♂ and a ♀-paratype were referred to and labelled by Bezzi as *minor* Bezz. From the ♀-type of *minor*, however, the ♀♀ differ in having an entirely black face, entirely whitish hair on head below, palps, on femora and tibiae, much narrower and not spindle-shaped antennal joint 3 and the anal cell not broadly and constantly open on hind border of wing.

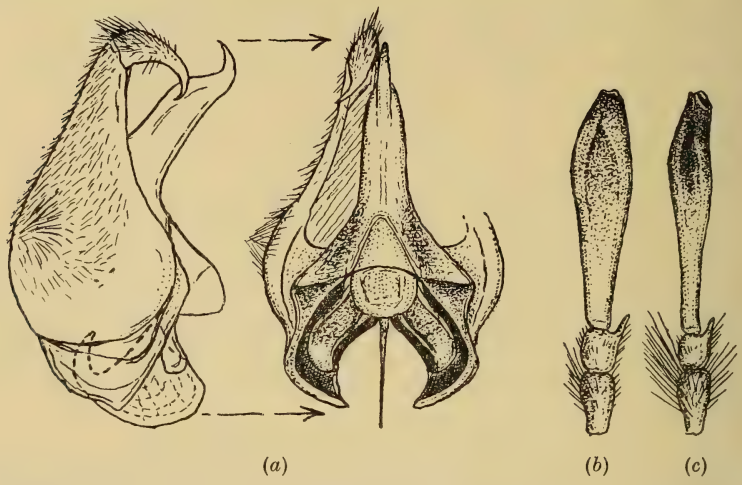
H. soror Bezz.

(Pp. 167 and 473, Ann. S. Afr. Mus., vol. xviii, 1921; p. 109, The Bombyliidae of the Ethiopian Region, 1924.)

There is little doubt that these ♂♂ and ♀♀, from S.W. Africa, belong to this species. There appears to be no specific and structural differences between these specimens and the small faded ♀-type of *soror* on which Bezzi based his description. As the ♂ has not yet been described and a series of better ♀♀ are available, a fuller re-description of the species is necessary:—

Body, including face, black; antennal joint 3 pale reddish to orange yellow, the apical part blackened; tibiae and tarsi brownish, the front ones even being dark brownish, with the apices of the tibiae also dark brownish and the last 2 tarsal joints almost black; pubescence with the erect hairs on body long in ♂♂, very sparse and shorter in ♀♀, especially on abdomen, also longer and denser on head in ♂♂, silvery whitish, some intermixed hairs on palps, on head below towards sides, on prosternal parts and on front femora below dark or blackish, more so in ♀♀, the rest of the hair on femora and especially the tibiae white, with the fine, depressed, scale-like pubescence on head occiput, thorax and abdomen above in ♀♀ comparatively sparse, sparser than in *muscoides*, denser only along sides of thorax and towards apex of abdomen, more silvery on sides of thorax, frons, occiput and sides of abdomen but distinctly more pale brassy or sericeous yellowish on disc of thorax and scutellum, becoming more distinctly brassy or golden towards apex of abdomen, in ♂♂ present only on abdomen and more silvery whitish than in ♀♀, though slightly pale brassy on disc; wings longer and more developed in ♂♂, slightly more milky whitish than in *muscoides*, the costal and basal part

more subopaquely whitish, the veins pale yellowish, the alula more rounded and lobe-like and the opaquely whitish squamae fringed with whitish hairs; halteres pale brownish to yellowish brown, with whitish or pale dirty yellowish knobs, blackened above and below in ♂♂. *Head* with a central furrow basally on frons in ♂♂, the frons slightly transversely depressed in ♀♀; antennae with joint 1 very short, only about 1½, or only a little more, times as long as 2, with joint 2 more or less sharply produced apically above, with joint 3



TEXT-FIG. 231.—(*a*) Side and ventral views of hypopygium of ♂ *Hyperusia soror* Bezz. (*b*) Antenna of ♀, and (*c*) of ♂ *Hyperusia soror* Bezz.

(text-fig. 231, *b* and *c*, ♀ and ♂, right one inner side) about 2½, or slightly less, times as long as 1 and 2 combined, gradually broadened from base, broadest at about apical third or fourth in ♂♂, then rapidly narrowed again, broader and stouter in ♀♀ (*b*), the base being less slender, broadest only a little beyond middle, slightly flattened or depressed in both sexes; proboscis short and stout, about 1–1½ mm. long. *Abdomen* in ♀♀ elongate and pointed apically, the insects superficially resembling small Mydaids. *Legs* with the claws markedly sickle-shaped, rapidly curved downwards, almost at right angles, at about the middle. *Hypopygium* of ♂ (text-fig. 231, *a*) much like that of *muscoides* but with the beaked apical joints distinctly more slender especially in apical half; basal strut distinctly larger, broader, and with the dorsal hook-like process longer; ramus connecting sides of basal parts to aedeagus also slightly different (cf. text-figures).

Length of body: about 5½–7 mm. (very small 3·2 mm.).

Length of wing: about 4½–5½ mm. (very small 3 mm.).

Locality.—S.W. Africa: Damaraland; Otjituo, Okahandya; Kaokoveld: Warmbad. (In the British and South African Museums.)

This species is apparently related to, but quite distinct from, *minor* Bezz. from Zululand, and it may be taken as the S.W. African representative of the S.E. African species. From the ♀ of *minor* these ♀♀ differ in not having a yellowish red spot on each side of the face, in not having entirely black hair on head below, on femora and tibiae, and in not having the anal cell of wing constantly open.

H. minor Bezz.

(Pp. 84 and 473, Ann. S. Afr. Mus., vol. xviii, 1921; p. 109, The Bombyliidae of the Ethiopian Region, 1924.)

The description of Bezzi is based on a ♀-specimen, as is quite evident from his description of the frons, and not on a ♂ as stated by him. The ♀-type specimen and 2 other ♀-specimens before me are in the South African Museum.

Apart from Bezzi's description, the chief characters of this eastern species are as follows:—

The face has a distinct yellowish or reddish yellow diffuse spot on each side; the hairs on palps, head below, pectus, femora and tibiae predominantly or entirely dark or blackish, not pale as stated by Bezzi; interocular space on vertex in ♀♀ is quite 3½ times as broad as ocellar tubercle; antennal joint 3 (text-fig. 232, left one from inner side) characteristic in that it is comparatively broad, broadest at about middle, broader than in any other species, ovate or spindle-shaped, narrowed apically and basally, and distinctly hollowed out or depressed on practically the entire inner face; frons distinctly transversely depressed; wings with the anal cell more or less broadly opening on hind border and also more constantly so than in other species, and the dirty yellowish knobs of halteres sometimes with a slight darkish infusion above.



Text-fig. 232.—Antenna of ♀ *Hyperusia minor* Bezz.

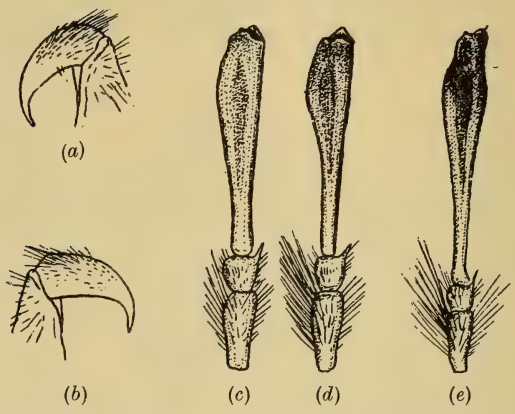
Length of body: about 4–4½ mm.

Length of wing: about 3½–5 mm.

Locality.—Zululand.

2 ♂♂ 6 ♀♀ *H. transvaalensis* n. sp.

Body, including antennae, black; face in ♀♀ on each side with a diffuse yellowish spot, sometimes obscure or more brownish and even absent; tibiae and tarsi pale ochreous yellow to pale yellowish brown, the apices of tibiae sometimes slightly darkened and last or last two tarsal joints and apices of claws blackish; pubescence with the erect hair on head and body silvery whitish, shorter and



TEXT-FIG 233.—(*a*) Side view of beaked apical joint of hypopygium of ♂ *Hyperusia transvaalensis* n. sp. (*b*) Side view of beaked apical joint of hypopygium of ♂ *Hyperusia nivea* Hesse. (*c*) Antenna of ♀, and (*d*) of ♂ *Hyperusia transvaalensis* n. sp. (*e*) Antenna of ♂ *Hyperusia nivea* Hesse.

sparser in ♀♀, only some shorter hairs on posterior part of head below, those on front femora and also on middle femora in front dark or blackish, the rest of the pubescence on middle and hind femora and the short hairs on all the tibiae (excluding only the dark spicules) silvery whitish, with the fine, depressed pubescence on thorax and scutellum above in ♀♀ silvery whitish, becoming very slightly more yellowish discally on scutellum, that on abdomen denser, denser again in ♀♀, silvery whitish, but with very faint brassy yellowish gleams in certain lights in ♀♀ at least, that on venter silvery whitish and denser in ♀♀; wings vitreous hyaline, with a distinct milky white tint, the costal cell, basal part of first basal cell and base being slightly more subopaquely whitish, the veins pale yellowish, the discal cross vein a little beyond middle of discoidal cell, with the anal cell acute apically, very shortly stalked or even sessile on hind border, with the axillary lobe broad and almost rectangularly prominent posteriorly and the opaquely whitish squamae white-

fringed; halteres pale yellowish brown, with very pale yellowish white to white knobs. *Head* with the interocular space on vertex in ♀♀ quite 3, or a little more, times as broad as tubercle; frons slightly transversely depressed in ♀♀; antennae with joint 1 about $2\frac{1}{2}$, or a little less, times as long as 2, with 3 (text-fig. 233, *c* and *d*, showing right joints from inner side of both sexes) gradually widening apically, broadest a little before apex, slightly more rapidly broadened in apical part in ♂♂ (*d*), the fused terminal joints almost invisible; proboscis about $1\frac{1}{2}$–2 mm. long, somewhat thickened basally, the labella sharply pointed and with sparse spinules; palps quite as long as antennal joint 3, slightly thickened and clavate apically. *Legs* with the spicules on tibiae dark and with 3 long bristly hairs present across apex of last tarsal joints above, especially on hind ones, these hairs almost as well developed as in *Corsomyza*. *Hypopygium* of ♂ like that of *soror* (cf. text-fig. 231, *a*), with the beaked apical joints shaped as shown in text-fig. 233, *a*, the apical part rather slender; ramus on each side, joining sides of basal parts to aedeagus, much like that of *soror* but slightly more produced outwardly; basal strut like that of *soror*.

Holotype in the Transvaal Museum, allotype in the South African Museum.

Length of body: about 4–6 mm.

Length of wing: about 4–$5\frac{1}{2}$ mm.

Locality.—Transvaal: Pretoria (Munro, 21/3/31).

Easily recognised by its entirely black antennae, greyish silvery pubescence and more conspicuously milky whitish wings. From *muscoides* it differs by the entirely black antennae and other characters given in the key.

1 ♂ *H. nivea* Hesse.

(P. 170, Ann. Trans. Mus., vol. xvii, 1936.)

Entire body, including the antennae, black; tibiae and tarsi pale ochreous yellow, only the last 1 or 2 tarsal joints blackish brown, and apices of claws black; pubescence with the erect hairs on head, body above and below, on front femora below, predominantly on middle femora, entirely on hind femora and tibiae, as well as the fine depressed pubescence on abdomen, denser above towards apex and sparse on venter, silvery white, with the hairs on front femora above and on sides above, on upper front part of middle femora and some bristly ones on outer upper parts of hind tibiae dark or blackish;

wings almost hyaline, only very indistinctly and faintly tinged milky whitish, practically only the costal cell, base, basal half of first posterior cell and to a certain extent the second basal cell being more distinctly subopaquely milky whitish, the veins pale yellowish, the costal and first longitudinal veins more conspicuously yellowish, the anal cell comparatively widely open on hind border, the discal cross vein much beyond middle, at least at apical fourth, of discoidal cell, with the axillary lobe broad, lobe-like, and not markedly subrectangularly rounded posteriorly, with the whitish opaque squamae fringed with white hair; halteres pale yellowish brown, with white knobs, distinctly darkened below. *Head* with the eyes on vertex separated by ocellar tubercle, the space a little broader than the tubercle; frons without a central furrow, only slightly depressed medially in front of tubercle; eyes with the coarser upper facets distinctly marked off from finer ones in about the lower half; antennae with joint 1 quite 3 times as long as 2, with joint 3 (text-fig. 233, *e*, right one from inner side) quite 3 times as long as 1 and 2 combined, slender at base, broadened apically, broadest at about apical third, slightly hollowed or depressed on inner side in apical half; proboscis about 3 mm. long, becoming stouter basally and with sparse spinules below; palps about 1 mm. long, not visibly broadened apically. *Legs* with at least 3 long bristle-like hairs apically above on last tarsal joints as in *Corsomyza*. *Hypopygium* also very much like that of *soror* (cf. text-fig. 231, *a*) and *transvaalensis*; beaked apical joints shaped as shown in text-fig. 233, *b*, less slender and shorter apically than in *transvaalensis*; rami as in *transvaalensis* and *soror*.

Type in the Transvaal Museum.

Length of body: about $5\frac{2}{3}$ mm.

Length of wing: about $5\frac{1}{2}$ mm.

Locality.—Bechuanaland: Kaotwe (V.-L. Kal. Exp., 8–12/4/1930).

Recognised by its black antennae, silvery white pubescence, almost hyaline wings, the comparatively widely open anal cell, as in *minor*, etc. *H. minor*, however, has yellowish red third antennal joints and predominantly dark or blackish hair on head below and on legs.

H. luteifacies Bezz.

(P. 108, The Bombyliidae of the Ethiopian Region, 1924.)

This species, described from a single ♀-specimen, is not represented in the collections before me and is the genotype of *Hyperusia*. According to the description, it differs markedly from the other

known species of this genus and is characterised chiefly by the extensive yellow markings on frons, face, genae, and on occiput, the yellow first and second antennal joints, the ochreous rufous spots on scutellum, the more clavate third antennal joints, etc. If it were not for the insertion of the antennae, which is just above the buccal cavity (*see* text-fig. 7, p. 109, loc. cit.) this species may easily be referred to the *Corsomyza simplex*-series of *Corsomyza*. Should *luteifacies* in fact prove to belong to the above series of *Corsomyza*, the genus *Hyperusia* s. str., based on it, will have to be relegated as a synonym of *Corsomyza*. In that case the other species of *Hyperusia* described by Bezzi and the new ones described in this paper would still be entirely distinct from *Corsomyza* and would then belong to an entirely different genus.

Gen. *Callynthrophora* Schin.

(Schiner, p. 313, Verh. Zool. Bot. Ges. Wien., vol. xvii, 1867; Bezzi, p. 80, Ann. S. Afr. Mus., vol. xviii, 1921.)

Not having seen the genotype-species *capensis* Schin., I have to rely on Schiner's description, on Bezzi's redescription of the genus, which he based on *marginifrons*, and on a new species in the collections before me for my generic diagnosis of this genus. There is thus some doubt whether *Callynthrophora*, as outlined by Bezzi on a species with two submarginal cells, is generically identical with that based by Schiner on *capensis* with three submarginal cells. Schiner's generic description of the cephalic characters is rather vague, and his generic difference of three submarginal cells in this group of genera is not always valid, as was also stated by Bezzi and as is evident from the fact that some species of *Corsomyza* also have three submarginal cells in the wings. Regarding cephalic characters, Schiner does not emphasise any dilated or tumid anterior part of the frons, but merely states that it is very broad across the antennae. His specific description of *capensis* is also inadequate and is even applicable to *Corsomyza nigripes* Wied., and especially to such forms as the ♂ of *C. anceps* Bezz. which show a tendency for three submarginal cells to be present. Provisionally I have to accept Bezzi's definition of this genus, which accordingly is characterised by the comparatively large and broad head, tumidly rounded in front, the markedly broad frons, which in both sexes is markedly inflated or tumid in front, the antennae being very low down and just above the buccal rim as in *Hyperusia*, the presence of a distinct facial brush

as in *Corsomyza*, the short and thickened first antennal joints, the presence of a dense coat of silvery whitish, very short, spinule-like pubescence on inner side at least of antennal joint 2, the slender third antennal joints with spear-blade or arrow-head shaped, clavate apical parts, the comparatively short proboscis, long palps, quite half as long as proboscis, the comparatively sparse pubescence on body above in ♀♀, the relatively bare pleural regions, the presence of 2 or 3 submarginal cells on wings, the apically acute and sometimes shortly stalked anal cell, the widely open first posterior cell, absence of a basal comb and narrow, somewhat reduced, alula, the presence of slender hairs only on femora below and no spines, with only a lower outer and a lower row of spicules on front tibiae, 3 rows of more bristle-like spicules on middle tibiae and with at least 4 rows of spicules on hind tibiae in addition to short and longer hairs, with the apical hairs above on last tarsal joints absent or inconspicuously minute, and with the claws and pulvilli well developed. The last sternite in the ♂♂ is notched apically at middle. The *hypopygium* of ♂♂ (text-figs. 234 and 235, *a*) like that of *Corsomyza*, etc.; basal parts with a posterior lobe; beaked apical joints with the beak also acute, but much less laterally compressed and the crest of bristly hairs along upper dorsal part less dense; aedeagus more acute apically and from side less broad than in *Corsomyza*, also without a ventral process; lateral and basal struts small, the latter not projecting basally.

This genus is nearest to *Corsomyza*, from which it may be readily distinguished by the markedly inflated and tumid, broad frons, short and more thickened first antennal joints, which are inserted much lower down and just above the buccal rim, by the presence of a dense coat of minute, spinule-like pubescence on second antennal joints, the absence of 3 distinct, long and conspicuous bristles or bristly hairs above apically on last tarsal joints and by the hypopygium of the ♂♂ (cf. text-figs. 234, 235, *a*, and 214–227).

Key to the known species.

1. (2) Wings with only 2 submarginal cells constantly present, more greyishly hyaline, less distinctly yellowish or smoky yellowish towards costal and basal part; halteres with the knobs darkened or blackish above and below even in ♀♀; femora with predominantly dark or blackish hairs below and, even in ♀♀, with numerous intermixed blackish hairs; mesopleural tuft, especially in ♂♂, with numerous intermixed black hairs; eyes in ♂♂ with the coarser facets in upper half not well marked

off from finer ones in lower half; antennal joint 3 (text-fig. 234, *b*) with the arrow-head shaped clavate apical part having the lower lamina more developed even in ♀♀ and with joint 1 reddish; pubescence on body above distinctly paler, more whitish or pale straw-coloured
♂ ♀ *marginifrons* Bezz. (p. 777).

2. (1) Wings with 3 submarginal cells constantly present, slightly more distinctly tinged yellowish or darker and more smoky greyish towards costal and basal parts; halteres with the knobs entirely white or very pale yellowish; femora with predominantly paler or whitish hairs, the intermixed dark ones much fewer; mesopleural tuft entirely whitish or yellowish; eyes in ♂♂ with the coarser upper facets well marked off from finer lower ones; antennal joint 3 (text-fig. 235, *b*) with the thickened apical part slightly longer, narrower and more spear-blade shaped, the lower lamina not more dilated or produced than upper one or the thickened apical part is more club-shaped and with joint 1 black; pubescence above distinctly more yellowish, either more creamy yellowish or reddish yellow . . . . . 3.

3. (4) Wings distinctly tinged more smoky greyish towards costal and basal parts, the costal cell and base, however, more yellowish again; facial brush pale creamy yellowish, almost whitish in certain lights, and face, genae and front half of frons very pale yellowish, almost pallid; pubescence on body above much paler, straw-coloured yellowish on thorax, becoming more creamy yellowish to pale sericeous yellow on scutellum and abdomen above in certain lights, the hair on body below and base of abdomen paler and more straw-coloured whitish; halteres pale yellowish brown, with almost white knobs
♂ *hastaticornis* n. sp. (p. 778).

4. (3) Wings not tinged smoky greyish towards base, only pale yellowish; facial brush reddish yellow and the head blackish; pubescence on body above and below entirely reddish yellow, the legs with scattered paler hairs; halteres sulphur yellowish . ♂ ♀ *capensis* Schin. (ex descr.) (p. 780).

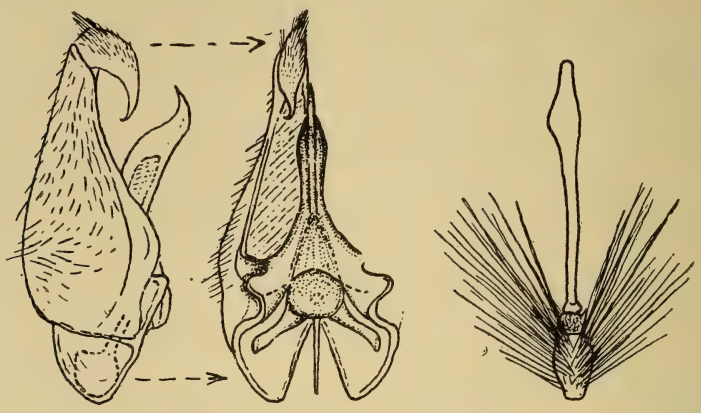
C. marginifrons Bezz.

(P. 80, Ann. S. Afr. Mus., vol. xviii, 1921, Pl. I, fig. 15; Bezzi, p. 180, loc. cit., referred to as *magnifrons*.)

Fully described on pp. 80–82 by Bezzi, but the following notes may be added:—

The third antennal joints (text-fig. 234, *b*, ♂ left one from outer side) with the lower lamina of the arrow-head shaped clavate apical part more dilated and prominent than the upper one; antennal joint 2, as in the other species, covered with a dense coat of short, fine, erect, silvery whitish, spinule-like pubescence; pubescence on body above not pale yellowish but more straw-coloured to straw-coloured yellowish, and sometimes slightly more yellowish in ♀♀,

with the hairs on palps not white, as stated by Bezzi, but dark blackish brown like those on head below; wings more greyish hyaline, the



(*a*) (*b*)

TEXT-FIG. 234.—(*a*) Side view and greater part of ventral view of hypopygium of ♂ *Callynthrophora marginifrons* Bezz. (*b*) Antenna of ♂ of same species.

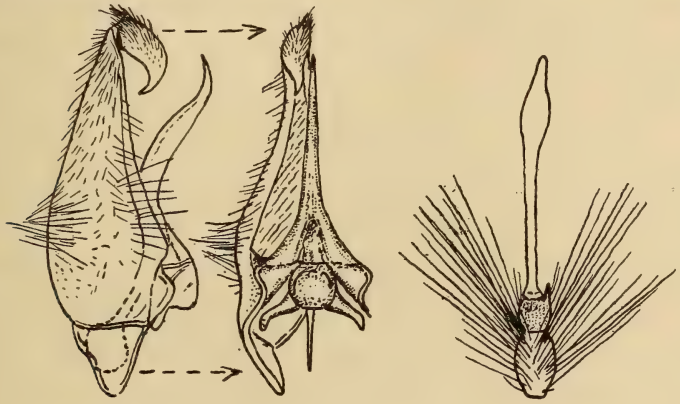
costal cell and base being sometimes tinged more yellowish; halteres more or less tinted brownish above in both sexes. *Hypopygium* of ♂ (text-fig. 234, *a*).

Locality.—Namaqualand.

1 ♂ *C. hastaticornis* n. sp.

Body, including antennae and legs, black; front part of frons, face and parts of genae pale ochreous yellow; claws reddish yellow, with blackish apices; facial brush creamy yellowish; pubescence with the erect hairs on frons, surrounding facial brush, on genae and head below laterally, the intermixed stoutish bristly ones on antennal joint 1 above and below, the intermixed hairs towards apex and on outer side of front femora, those on outer and inner sides apically on middle femora, some intermixed ones on hind femora and pubescence on hind tibiae black, with the erect pubescence on body above straw-coloured yellowish, that on ocellar tubercle, occiput, front part of thorax and in tuft in front of wings almost white, straw-coloured whitish, that on disc of thorax, scutellum and abdomen above more straw-coloured yellowish, becoming pale sericeous yellowish to very pale yellowish in certain lights on abdomen at least, that on head below, on pleural and pectoral parts, venter and predominantly on coxae and the femora below whitish; wings

greyish hyaline, but distinctly, though faintly, pale yellowish brown towards costal and basal parts and to a lesser extent in second basal cell, the costal cell and base being slightly more distinctly yellowish, with the veins brownish, the discal cross vein and basal cross vein of fourth posterior cell tending to be darkened, with 3 submarginal cells present, with the slightly brownish-bordered and opaquely whitish squamae white-fringed; halteres pale yellowish, with ivory whitish knobs. *Head* conspicuously broad, with the coarser facets



(*a*) (*b*)

Text-fig. 235.—(*a*) Side view and greater part of ventral view of hypopygium of ♂ *Callynthrophora hastaticornis* n. sp. (*b*) Antenna of ♂ of same species.

of eyes in upper part distinctly marked off from finer lower ones in less than the lower half; antennae with joint 1 barrel-shaped, with a distinct sharp prominence apically above on joint 2 and also with the dense coat of spinule-like pubescence on 2 silvery whitish, with joint 3 (text-fig. 235, *b*) slender, elongate, the thickened apical part spear-blade shaped; proboscis about 1½ mm. long; palps white-haired and reaching slightly beyond middle of proboscis. *Hypopygium* of ♂ (text-fig. 235, *a*) differs from that of *marginifrons* in having more and longer hairs on basal parts, a slightly differently shaped beaked apical joint (cf. figures), a distinctly longer and more slender aedeagus, etc.

Type in the Transvaal Museum.

Length of body: about 8 mm.

Length of wing: about 7 mm.

Locality.—W. Cape Province: Clanwilliam (Brauns, Sept. 1928).

This species differs from *marginifrons* in having entirely black antennae, predominantly whitish or pale hairs on palps and femora, the presence of 3 submarginal cells on the wings, etc.

C. capensis Schin.

(Schiner, p. 140, Reise d. Novara. Dipt. Zool. Pt., vol. ii, pt. 1, 1868.)

This species, described from the Cape, is unknown to me, but is characterised, according to the description, by the dense reddish yellow pubescence of the body, the reddish yellow facial brush, blackish brown antennae and proboscis, pale scattered hairs on legs, practically hyaline wings, which are only slightly yellowish at base, etc. For further remarks on this species see under the generic description.

Gen. *Gnumyia* Bezz.

(P. 82, Ann. S. Afr. Mus., vol. xviii, 1921; Malloch, p. 120, Stylops, i, fig. 3 and 3 A, 1932.)

This genus was fully described by Bezzi and was erected to contain a species represented by a single ♂, and not a ♀ as stated by Bezzi. It is nearest to *Callynthrophora* Schin., but is, however, entirely different generically in many respects. It is characterised by the large and broad head, the characteristically inflated and tumid appearance of the head in front, the genae and front part of face being almost roundly inflated, the buccal part of face being separated from the broad genae by a furrow becoming deeper lower down and the buccal cavity is proportionally small; antennae inserted very high up above dorsal part of buccal rim, with the first joints widely separated, more widely than in any other genus in this series, comparatively short, with joint 2 nodular or subglobular, scarcely longer than broad and with the upper apical part produced into a longish, styliform process, more so than in any other genus in this group, with joint 3 elongate, slender or equally broad throughout and not ending in a clavate apical part as in *Corsomyza* and *Callynthrophora*, the extreme apex being pointed; proboscis remarkably short and stout, scarcely, or not, longer than buccal cavity, the labella tumid and broad, more like that of a Muscid and with conspicuous scattered spinules; palps shorter than the proboscis and not longer as stated by Bezzi, slender, without distinct separately visible joints; wings with 3 submarginal cells present, with the anal cell very angularly acute apically and provided with a very short stalk, with the axillary lobe well developed, without a basal comb and with the alula narrow, but still lobe-like; pubescence on body distinctly less dense and also

shorter than in ♂♂ of *Corsomyza* and *Callynthrophora*, that on ocellar tubercle and vertex longer than the other hairs on head, a distinct concentrated facial brush is absent, the hairs on genae and extreme front part of face being distinctly more dense and longer than the less dense and even scattered short hairs on face in front, that on thorax being more dense on sides, but even there distinctly less dense than in *Corsomyza* and *Callynthrophora* and the mesopleuron has no characteristic dense tuft, with less dense hairs on pleurae than on body above but on the whole with more hair than in the other two genera, only the metapleurae being entirely bare and even the small tuft below halteres being wanting; abdomen above with distinctly sparser and shorter pubescence than in the above-named two genera, that laterally, however, slightly longer and denser than above, there being no stoutish bristly hairs or bristles across the hind margins as stated by Bezzi; last sternite in ♂♂ notched apically at the middle; legs with only longish and dense pubescence on femora below, without any spines, the tibiae also hairy, dense pubescence being present on hind ones and only with a few stoutish spicules in an outer lower row on front tibiae, an inner and outer lower row on middle ones and more or less three rows on hind ones, with more than 3 hairs apically above on last tarsal joints as in *Callynthrophora*. *Hypopygium* of ♂♂ (text-figs. 236 and 237) with the beaked apical joints more or less triangular when viewed from above, the outer side subangularly produced or at least much produced, the beak distinct and slender, the joints not laterally compressed but distinctly more dorsoventrally; basal parts more or less shaped as in text-fig. 237, in both the known species, finely shagreened and with fine hairs; aedeagus resembling that of other genera in this group and without a ventral process; lateral and basal struts small.

The genus is at present represented by only 2 species, the genotype species *brevirostris* Bezz. and another new species, *fuscipennis*, described below. The ♀♀ of both species are still unknown.

Key to the species.

1. (2) Wings whitish or greyish hyaline, with the costal and basal parts slightly tinged more yellowish, the costal cell, base of marginal cell, basal half of first basal cell and base being more subopaquely yellowish white, the veins on the whole paler and more yellowish; antennae with joint 1 slightly longer, about 2 times as long as 2 and joint 3 entirely black; lower part of hind margins of eyes and posteriorly below eyes entirely black or without a small yellowish white spot; posterior calli or at least scutellum entirely black or at least not distinctly rufous; legs with

less dense or conspicuous pubescence on femora and the hind tibiae not conspicuously feathery; hypopygium (text-fig. 236) with the beaked apical joints distinctly more dorsoventrally compressed, the beak longer and the outer side more subangular, with the aedeagus as shown in figure . . . . . ♂ *brevirostris* Bezz. (p. 782).

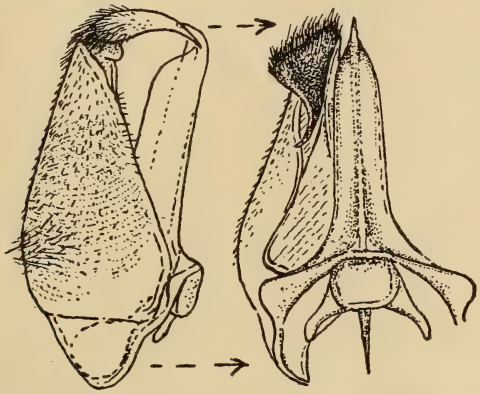
2. (1) Wings distinctly tinged smoky brownish, becoming much darker, even brownish in costal cell, bases of marginal and enclosed submarginal cells, first basal cell, extreme base of discoidal cell, to a large extent the second basal cell and base, the costal cell and first basal cell being slightly darker, subopaque and the subapical part of costal cell across veins to the apical part of first basal cell being visibly much darker, with a diffuse transverse band at base of wing across bases of veins, another diffuse spot just beyond middle of first basal cell and the apex of costal cell paler and more subopaquely yellowish white, with a clear spot near apex of second basal cell, with the veins darker, more brownish and darker in the more darkly infuscated parts; antennae with joint 1 slightly shorter, distinctly less than 2 times as long as 2 and with joint 3 muddy yellowish to middle or beyond middle; head along lower part of hind margins of eyes and posteriorly below eyes diffusely and more extensively yellowish white; posterior calli and disc of scutellum obscure reddish brown; legs with denser and more conspicuous pubescence on femora, and the hind tibiae more conspicuously feathery; hypopygium (text-fig. 237) with the beaked apical joints distinctly less dorsoventrally compressed, the dorsum more convex, the beak slightly shorter and the outer side more broadly rounded, with the aedeagus more slender (cf. text-figs. 237 and 236) . . . ♂ *fuscipennis* n. sp. (p. 783).

G. brevirostris Bezz.

(P. 83, Ann. S. Afr. Mus., vol. xviii, 1921; Malloch, p. 120, Stylops, i, fig. 3 and 3 A, 1932.)

This species, originally described from a single specimen by Bezzi, is represented by the ♂-type, not a ♀ as stated by Bezzi, in the South African Museum and by 3 other ♂♂ in the collections before me. The species is characterised by the entirely dark third antennal joints, the muddy brownish or yellowish head in front, the slender palps which are about as long as slender part of proboscis (excluding the labella), the entirely black pubescence on body and legs, which is dense on front part of frons and lower parts of genae on each side and which on abdomen is fine, there being no transverse rows of black bristles across the hind margins as stated by Bezzi (the type-specimen was evidently pinned after having been preserved in fluid and hence the close adherence of individual hairs to resemble bristles); scutellum entirely black or at least not distinctly rufous; wings whitish or greyish hyaline, with the costal and basal parts tinged

slightly more yellowish, the costal cell and base being more subopaquely yellowish white, the squamae dull brownish and with a dark fringe; legs with the pubescence on hind tibiae at least not conspicuously feathery. *Hypopygium* (text-fig. 236) with the basal parts shaped as in text-figure (too straight in my drawing), the integument of the basal parts very faintly shagreened in certain lights; beaked apical joints more or less flattened, the outer side



TEXT-FIG. 236.—Side view and greater part of ventral view of hypopygium of ♂ *Gnumyia brevirostris* Bezz.

being subangularly prominent and the beak slender, directed downwards and slightly outwards, the bristly hairs more or less confined to postero-lateral parts; aedeagus as shown in figure.

Locality.—South-Western and Western Cape Province, Great Namaqualand and Southern Rhodesia. (In the British and South African Museums.)

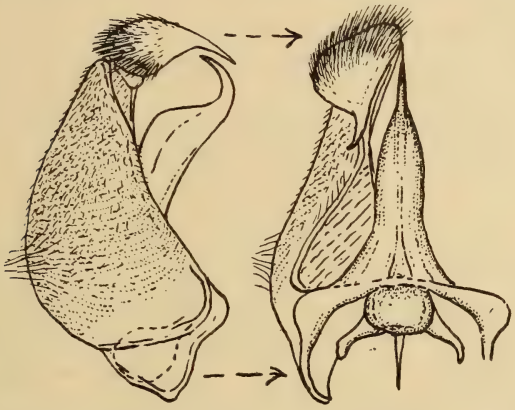
As I have not seen the Rhodesian specimens, figured by Malloch in Stylops (loc. cit.), I am unable to state from Malloch's figures of the head, antenna and wing whether these specimens belong to the same species as *brevirostris* Bezz. The third antennal joint, in the type of *brevirostris* and the 3 other ♂♂, is distinctly more slender, more rod-shaped and not so markedly spindle-shaped as that figured by Malloch.

3 ♂♂ *G. fuscipennis* n. sp.

Body black; antennal joints 1 and 2 and basal half or two-thirds of joint 3, the greater part of front part of frons, the entire face and genae and the front part of head below pale muddy yellow to muddy brown; basal part of frons, extending along eye-margins on each

side, blackish brown or black; posterior calli and scutellum discally obscurely dark reddish brown to reddish; pleurae infused with very dark blackish brown and the legs also very dark blackish brown to black; lower part of head below eyes and along hind margins of eyes in lower half on each side more or less ivory yellowish; claws yellowish brown, their apical halves blackened; pubescence on head and body above and below and also on legs entirely very dark, soft, blackish brown to black, appearing sooty black in certain lights, but having a distinct very dark mauvish black or brownish tint in others, the erect hairs on ocellar tubercle longer than on rest of head, those transversely at about middle of frons, on lower parts of genae and in lower parts of the furrows between genae and buccal part very dense and denser than on face in front, those on body above sparser and shorter discally on thorax and abdomen, those on sides of abdomen being slightly denser and longer again, with the hairs on each side in front of wing-bases not concentrated into a distinct tuft, those on pleurae sparse, those on femora comparatively dense, much denser than in *brevirostris* and those on hind tibiae markedly dense and even more feathery in appearance; wings tinged smoky brownish to brownish, becoming much darker and more distinctly brownish in costal cell and towards bases of the other cells and base, the apical part of costal cell, a diffuse spot at about middle of first basal cell and a transverse diffuse spot at base being much paler and more yellowish to yellowish white and more or less separating a darker brownish area across apical and basal parts of first basal cell, with a conspicuous, subopaque, whitish spot at apex of second basal cell more or less coalescing with the more yellowish white one at middle of first basal cell, with the veins yellowish, the main longitudinal ones, however, darker and more brownish, with the opaquely dark brownish squamae fringed dark blackish brown; halteres brownish, with very pale yellowish white knobs. *Head* with the eyes separated above on vertex by a space broader than the broad ocellar tubercle, about two-thirds as broad again as tubercle; eyes with the coarser facets in upper half not very well marked off from finer ones below; antennae with joint 1 very short, less than 2 times as long as 2, more widely separated than two posterior ocelli, with a comparatively long finger-like process apically above on joint 2, with joint 3 rod-like, slender, its apex pointed and with the apical part slightly depressed on inner side; proboscis about 1 mm. long, stoutish, horny, with sparse, but distinct, spinules below, with the labella broad, fleshy, also sparsely spinulated and shaped like that of some

Muscidae; palps slender, slightly shorter than in *brevirostris*, not quite as long as slender part of proboscis. *Hypopygium* (text-fig. 237) differs from that of *brevirostris* in having the basal parts more distinctly shagreened, less flattened beaked apical joints, with the dorsum more convex, the outer lateral part more broadly rounded and the beak distinctly shorter, with the aedeagus from side more slender,



Text-fig. 237.—Side view and greater part of ventral view of hypopygium of ♂ *Gnumyia fuscipennis* n. sp.

its apical curved part more slender, longer and more broadly curved (cf. text-figs. 236 and 237).

Type in the Transvaal Museum.

Length of body: about 5½–8 mm.

Length of wing: about 5–6½ mm.

Locality.—S.E. Karoo: Willowmore (Brauns, 10/12/20) (Type). Gouph Karoo: Letjiesbos (Mus. Staff, Nov. 1935).

Easily recognised and distinguished from *brevirostris* Bezz. by its brownish infuscated wings and by other characters given in the key.

Crocidium-Group.

To this group I am referring *Crocidium* Lw., *Apatomyza* Wied. and *Adelogenys* n. gen. The group is characterised by having a humped thorax, by having the anal cell of wings closed and acute apically and usually provided with a short or very short stalk as in the *Corsomyza*-Group and in the Palaearctic *Usiinae*, by having the second longitudinal vein and the vein separating the two submarginal cells practically straight or very little bent upwards at their ends, by not

having a distinct basal comb, by the relatively sparse pubescence, especially in ♀♀, by the absence of distinct, stouter, transverse bristles in rows on abdomen, by having distinct and sometimes dense scaling on body, by the entire absence of any distinct spines on femora below, the comparatively poorly developed spicules on tibiae, the presence of a distinct longer, usually yellowish and dark-tipped apical spur below on middle tibiae in both sexes and by the usually long and conspicuous two-jointed palps, the apical joint of which is short and usually distinct. From the *Corsomyza*-Group this group may at once be distinguished by the absence of a circular facial brush, much sparser and less shaggy pubescence, the different type of third antennal joints, longer legs and different type of hypopygium in ♂♂.

Gen. *Crocidium* Lw.

(P. 195, Dipt. Faun. Südafr., i, 1860; Becker, p. 485, Ann. Mus. Zool. Acad. Imp. St. Petersb., vol. xvii, 1912; Bezzi, p. 92, Ann. S. Afr. Mus., vol. xviii, 1921; Paramonow, p. 182, Trav. Mus. Zool. Kiev., No. 11, 1931.)

This genus is characterised by the somewhat humped body, the rather sparse pubescence and the absence of distinct, long or stoutish bristles, by the entire absence of spines on femora below, the presence of a comparatively long spur or spine apically below on middle tibiae, the absence of a basal comb to wings, the almost straight second longitudinal vein and vein separating submarginal cells, the apically acute and closed anal cell, the presence of 4 posterior cells of which the first opens broadly on the hind border and the markedly broad, lobate axillary lobe. Originally *Crocidium* was referred to the *Phthiriinae* by Loew and subsequently retained therein by Becker and Bezzi. When compared with what I take to represent the true Phthiriines, of which the genus *Phthiria* Meig. is typical, it is evident that *Crocidium* and related genera, such as *Adelogenys* n. gen. and *Apatomyza* Wied., can no longer be retained in the *Phthiriinae* but apparently form a group by themselves which can only be relegated to the *Bombyliinae*. Compared with *Phthiria*, as representative of the *Phthiriinae*, it differs in the following points:—(*a*) The palps are distinctly two-jointed, with the apical joint very short. (*b*) The face is distinctly more developed and more prominent above the buccal cavity and in front of the antennae. (*c*) Frons in ♀♀ not convex in front but more or less centrally or slightly transversely depressed just behind antennae, thus not markedly tumid behind antennae towards apex. (*d*) The third

antennal joints are, on the whole, narrower and are without an apical spine-like process and also have the terminal elements, in form of a style, terminal, the first antennal joint is always much longer. (*e*) The wings have the second longitudinal vein and upper vein of second submarginal cell slightly less straight at their ends. (*f*) The spicules on the tibiae are distinctly longer, more developed and more conspicuous, and the middle tibiae have one apical spine or spur elongated and yellowish. (*g*) The hypopygium of the ♂♂ have the inner apical part of basal parts not produced into a conspicuous or long apically spinulated process.

On the other hand, its relationship to the Bombyliines is more evident and superficially there is even some resemblance to *Bombylius* and *Chasmoneura*. From *Bombylius* it may, however, at once be distinguished by the open first posterior cell, acute and closed anal cell and almost straight ends of the veins in upper apical part of the wings as well as the entire absence of spines on the femora below. From *Dischistus* s. str. it is distinguished by the much sparser and shorter pubescence, almost straight veins in apical part of wings, the closed and acute anal cell, very broad axillary lobe, etc. From *Doliogethes* and *Chasmoneura* it differs by most of the above-mentioned wing-characters and by the absence of spines on the femora below.

The *hypopygium* of the ♂♂ (text-figs. 238-245) without a very long lobe-like process at bases of basal parts but with a distinct process present; beaked apical joints either slender, elongate, cylindrical, sparse-haired and acutely pointed or flattened and twisted as shown in text-figs. 239 and 240; aedeagus well developed, without a ventral process, joined on to base of basal parts on each side by a flange or flap-like ramus (cf. text-figs.); lateral struts either strongly developed, elongate and directed outwards or much shorter and directed obliquely downwards or basally; basal strut racket-shaped or tending to be chopper-shaped.

The known species of this genus have been divided into two distinct sections in this paper, of which the second section, with unspotted wings, very much longer proboscis, longer first antennal joints, more slender and rod-like third antennal joints, brilliantly shining frons and face and ivory yellowish transverse band on facial region in ♀♀ and slightly longer pubescence, is not strictly genotypical according to Loew and Becker. These differences are, however, not so distinctive as to justify the erection of a separate genus, and provisionally species in the second group have been retained in the genus *Crocidium* where they may be taken as representing transitional forms.

Key to the known species of Crocidium.

1. (8) Wings more or less opaquely whitish or distinctly tinged yellowish, dusky or smoky greyish and always with distinct and conspicuous spot-like infuscations on cross veins and on other veins or with bands of dark cloudiness, more or less broken up into spots, the wings showing a mottled appearance; frons and face in ♀♀ and face in ♂♂ usually dull and not brilliantly shining black, the facial region in ♀♀ without a broad ivory whitish or yellowish band across genae and buccal cavity; proboscis much shorter and stouter, usually less than 2 mm. long; antennae with joint 1 usually much shorter than 3 times as long as 2 and, when about 3 times as long, wings are spotted, with joint 3 usually broader from side, more humped in appearance; pubescence on the whole denser in both sexes, but shorter in ♂♂ . . . . . 2.
(Section 1.)

2. (3) Wings with more rounded spots as follows: at fork of second and third longitudinal veins, at apex of second basal cell, across apices of anal and axillary cells, at apex of first basal cell, an elongate one along vein between discoidal and second and third posterior cells, at base of vein between marginal and first submarginal cells, at end of second longitudinal vein and small ones near ends of veins in posterior part of wings, with the rest of wings not cloudy or dusky; scutellum entirely black; pubescence, in ♂ at least, entirely or predominantly silvery whitish; halteres with the knobs darkened or blackened above; hypopygium of ♂ (text-fig. 238) with the beaked apical joints slender, cylindrical and elongate and with the lateral struts longer
♂ *poecilopterum* Lw. (p. 792).

3. (2) Wings with the infuscations less rounded, with a tendency to form transverse bands of spot-like infuscations or with cloudiness in the cells from apex of costal cell to hind border or from middle of costal cell to hind border, or even from apex of marginal cell across to posterior cells, or the wings are tinged smoky or dusky; scutellum with at least hind margin reddish; pubescence not entirely silvery or sericeous whitish above and below; halteres in both sexes with the knobs very pale yellowish or whitish; hypopygium of ♂♂ (text-figs. 239–240) with the beaked apical joints much flattened, broader, more leaf-like and peculiarly shaped and with the lateral struts much shorter . . . . . 4.

4. (7) Wings more or less subopaquely whitish or very pale yellowish white, with distinct and conspicuous dark spots, at middle of first basal cell, on apical cross veins of first and second basal cells, at apex or apical part of anal cell, at base of vein between discoidal and third posterior cells, on apical cross vein of discoidal cell, at base of vein between submarginal cells, at apical part of costal cell and also with dark cloudiness or spot-like cloudiness in some or most of the cells, with the veins pale yellowish in uninfuscated parts; abdomen above with broadish or conspicuous yellowish or reddish yellow hind margins in both sexes and femora predominantly or entirely yellowish in ♀♀, the apices or apical parts more extensively yellowish in ♂♂; pubescence on head below, coxae and on venter very pale, whitish, pale sericeous yellowish or straw-coloured

yellowish, that on disc of thorax in known ♂♂ at least without much intermixed dark hair . . . . . 5.

5. (6) Wings with dark brownish infuscations at base of common stem of second and third longitudinal veins, on apical cross veins of first and second basal cells, at base of vein between submarginal cells, along veins separating discoidal and third posterior cells and discoidal and second posterior cells, at apex of supernumerary vein in costal cell and also along vein between anal and fourth posterior cells and to a certain extent along the posterior veins, with a spot-like cloudiness at middle of second basal cell, at base of first submarginal cell across middle of first basal cell to base of discoidal cell, and another towards apex of first submarginal cell, with the discoidal cell broader and more triangular; antennae with joint 1 shorter, only a little more than 2 times as long as 2, with 3 short, laterally compressed, much broadened at about or just before middle, more humped; face shorter; pubescence on face, genae and head below distinctly shorter, much sparser and more yellowish, that and the scaling on head above, thorax above and scutellum, especially in ♀♀, sericeous to golden yellowish; red on abdomen above less extensive, only the hind margins reddish; hypopygium of ♂ (text-fig. 239) . . . . . ♂ ♀ *chrysonotum* n. sp. (p. 793).

6. (5) Wings with slightly darker and more dark blackish brown infuscations on the same sites on cross veins and veins, but also with more extensive spot-like cloudiness at middle of costal cell and across to apical parts of anal and axillary cells, at apex of costal cell and across apex of marginal cell, middle of first submarginal cell, base of second submarginal cell, middle of first posterior cell, middle of second posterior cell to greater part of third posterior cell and even apical part of fourth posterior cell, with the discoidal cell relatively narrower, not triangular; antennae with joint 1 distinctly longer at least 3 times as long as 2, with 3 very much longer, more slender, less broadened and only gradually narrowed apically, the first terminal element also very much longer; face much longer; pubescence on face, genae, and head below, very much denser and longer, more shaggy and white, that and the scaling on head above, thorax above and scutellum in ♀ at least deep, orange or cinnabar, reddish golden; red on abdomen above in ♀ more extensive, tergites 2–4 discally being predominantly reddish . ♀ *pterostictum* n. sp. (p. 795).

7. (4) Wings uniformly darkly tinged dusky or smoky, with the base, basal part of costal cell, a spot just in front of fork of second longitudinal vein and another near apex of second basal cell subopaquely whitish and with the dark spot-like infuscations less distinct and only indicated, only that at apex of costal cell and those on apical cross veins of first and second basal cells spot-like and distinct, with the veins very dark or blackish and only yellowish at extreme base of wings; abdomen above with narrower yellowish hind margins and the femora blackened to much beyond middle in both sexes, almost entirely black in ♂♂; pubescence on ocellar tubercle, on head below, on coxae and on venter towards apex in both sexes very dark or blackish, that on disc of thorax in ♂♂ with very numerous or much intermixed black hairs; hypopygium of ♂ (text-fig. 240) . . . . ♂ ♀ *phaeopteralis* n. sp. (p. 797).

8. (1) Wings hyaline or vitreous hyaline or greyish hyaline, at most with a very faint scarcely perceptible milky white tint in certain lights, without any spots, spot-like infuscations or dark spot-like cloudiness or with only a faint infuscation on apical cross veins of first and second basal cells, the wings never showing a speckled or mottled appearance; frons and face in ♀♀ and face in ♂♂ brilliantly shining black or with a distinct tendency to be so, and the facial region in ♀♀ at least yellowish or with a broad ivory whitish or yellowish band across genae and buccal cavity; proboscis longer, more slender, and usually more than 2 mm. long, sometimes very long; antennae with joint 1 usually distinctly longer, at least 3 times as long as 2, with joint 3 more slender, less broadened from side; pubescence on the whole or usually sparser in both sexes, but longer in ♂♂ . . . . . 9.

(Section 2.)

9. (18) Legs entirely black in both sexes, the longer yellowish spur apically below on middle tibiae not markedly long; abdomen entirely black or with only relatively very narrow and inconspicuous yellowish hind margins; face slightly broader and more conically prominent or spout-like, especially in ♀♀, distinctly smoother and more brilliantly shining black in both sexes, with the paler and more ivory whitish transverse band across facial region in ♀♀ narrower, less extensive and confined to lower half or part of genae; wings without a very distinct indication of a spot-like infuscation on apical cross veins of first and second basal cells and, where slightly indicated, legs are entirely black, with the veins on the whole more extensively dark or black; pubescence tending to be less dense and sparser, that on sides of face, genae, head below, on front part of pleurae, on front coxae and front femora even in ♂♂ usually less dense and shaggy, without any or much hair on face medially . . . 10.

10. (15) Palps conspicuous, long and projecting, very much longer than, or at least as long as first and second antennal joints, and usually thicker; frons in ♀♀ more medially depressed anteriorly, not transversely from side to side; pubescence slightly denser and, in ♂♂, more conspicuous, with the scaling, especially on body below, narrower and less conspicuous; eyes in known ♂♂ with the coarser upper facets imperceptibly grading into finer lower ones . . . . . 11.

11. (12) Wings with all the veins entirely black or blackish even to extreme base, the wings themselves more obviously tinted milky whitish; halteres with the knobs entirely black above; legs entirely black, not even the knees pallid; pubescence on the whole denser, that on body below and abdomen in ♂♂ at least, denser and more shaggy, entirely frosty white above and below; hypopygium (text-fig. 241) . ♂ *melanopalis* n. sp. (p. 800).

12. (11) Wings with the veins not entirely dark or black, the costal veins and the others distinctly yellowish or pale yellowish towards base, the wings themselves more vitreous hyaline; halteres with the knobs entirely very pale above or only slightly pale brownish, not black above; legs with the knees, even if only narrowly, pallid or yellowish; pubescence on the whole sparser, that on body below and abdomen in known ♂♂ less shaggy and dense, that on occiput and thorax above tending to be yellowish, pale sericeous yellowish to brownish yellow even in ♀♀ . . . 13.

13. (14) Wings with the apical cross veins of first and second basal cells not showing an indication to be distinctly darker, with the discal cross vein at least at apical third of discoidal cell; palps on the whole narrower, very much shorter, with finer and sparser hairs and with the apical joint shorter, very short and not longer than antennal joint 2; proboscis stouter, the labrum-epipharynx broader and more strongly developed; pubescence on occiput and thorax above paler
♀ *nitidilabris* n. sp. (p. 801).

14. (13) Wings with a faint indication of a distinct darker infuscation on apical cross veins of first and second basal cells, with the discal cross vein a little beyond middle of discoidal cell and at least at more than apical third of discoidal cell; palps conspicuous, very elongate, much broader and more strap-like, especially towards apical part, with denser and distinctly more numerous hairs and with the apical joint longer, longer than antennal joint 2 and also not broader than apical part of basal joint; proboscis distinctly more slender, the labrum-epipharynx narrower; pubescence on thorax above darker and more brownish, that on sides of face very dark brownish; hypopygium (text-fig. 242)
♂ *nigrifacies* Bezz. (p. 802).

15. (10) Palps very much and distinctly shorter, inconspicuous and confined to base of proboscis, shorter than antennal joints 1 and 2 together, very slender and with a very short apical joint; frons in ♀♀ with a distinct transverse depression from side to side; pubescence slightly sparser, sparser even in ♂♂, with the scaling, especially on body below and in ♀♀, broader and more lanceolate; eyes in ♂♂ with the upper coarser facets well marked off from finer lower ones . . . . . 16.

16. (17) Proboscis very long and slender, about 3–4 mm. long; palps shorter; abdomen with the hind margins scarcely or only very narrowly pallid in ♀♀, practically entirely black in ♂♂; ivory whitish or yellowish transverse band across facial region in ♀♀ distinctly broader, even extending to part of head below; knobs of halteres in ♂♂ darkened or blackened above; wings with second longitudinal vein undulating; pubescence on genae and head below and on abdomen denser and longer; hypopygium of ♂ (text-fig. 243) . ♂ ♀ *phaenochilum* n. sp. (p. 803).

17. (16) Proboscis much shorter, shorter than 3 mm.; palps slightly longer and more conspicuous; abdomen with the hind margins of the segments distinctly more broadly or more conspicuously pallid or yellowish, even in ♂♂ and the hind margin of scutellum in ♀♀ sometimes also yellowish; ivory whitish or yellowish transverse band across facial region in ♀♀ distinctly narrower, not extending on to part of head below; knobs of halteres in ♂♂ entirely whitish or pale; wings with the second longitudinal vein straight; pubescence on genae and head below and on abdomen, especially in ♀♀, shorter and sparser; hypopygium of ♂ (text-fig. 244) . . . . . ♂ ♀ *depressifrons* n. sp. (p. 805).

18. (9) Legs with the extreme apices or apical parts of femora and sometimes the entire hind femora, greater part or entire hind tibiae, greater part or basal part or even entire middle tibiae, the bases of front ones and the bases of tarsi yellowish, with the longer spur apically below on middle tibiae markedly long and much paler yellowish; abdomen usually with

much broader and more conspicuous yellowish hind margins, even in ♂♂; face narrower and more convex or conical in both sexes, not entirely smooth and shining, always with some pubescence, even medially, with the greater part of facial region in ♀♀ yellowish to ochreous, the yellow not only occupying most of the genae but sometimes extending on to sides of face and even up to level of antennae; wings with a constant and distinct spot-like infuscation on apical cross veins of first and second basal cells, with the veins more extensively yellowish in basal half; pubescence comparatively denser, slightly longer and more shaggy on face, genae, head below, front part of pleurae, on front coxae and on front femora, with some or even much hair on face medially, that on occiput, thorax above, and scutellum appearing reddish or brownish in certain lights; hypopygium of ♂ (text-fig. 245)

♂ ♀ *karooanum* n. sp. (p. 807).

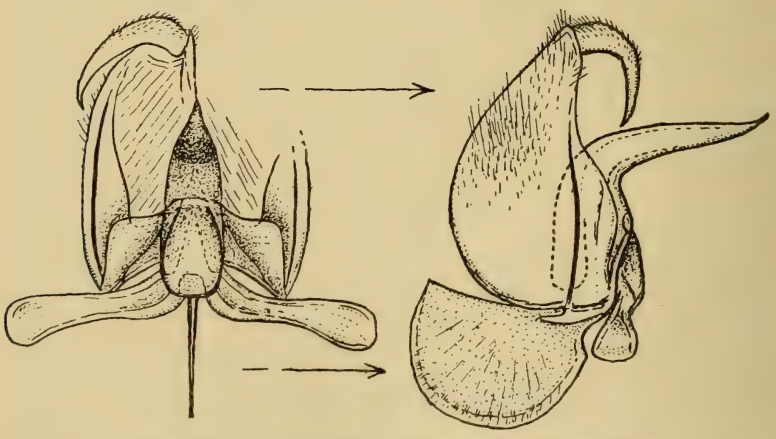
In here also *immaculatum* Bezz. (in lit.).

Section 1.

C. poecilopterum Lw.

(P. 195, Dipt. Faun. Südafr., i, 1860, Tab. II, fig. 8, *a*, *b* and *c*; Bezzi, p. 93, Ann. S. Afr. Mus., vol. xviii, 1921; Paramonow, p. 185, Trav. Mus. Zool. Kiev, No. 11, 1931.)

Loew, in his Latin synopsis, states that his specimen is a ♀, but from his description of the eyes, . . . "*Augen vollständig zusammen-*



Text-fig. 238.—Greater part of ventral view and side view of hypopygium of ♂ *Crocidium poecilopterum* Lw.

stossend" and from the figure of the head on Table II, it is obvious that the specimen is a ♂. Bezzi's description of the "hitherto not

described" male is thus merely supplementary, the ♀ of this species being still unrecorded. This species is characterised by the arrangement of the spots on the wings as shown by Loew in his figure, by the black scutellum, blackish palps, predominantly whitish or silvery whitish pubescence on body, and by the dorsally darkened knobs of the halteres. The middle tibiae, as in all the known South African species of *Crocidium*, have a long, yellowish apical spur below in addition to the shorter black ones.

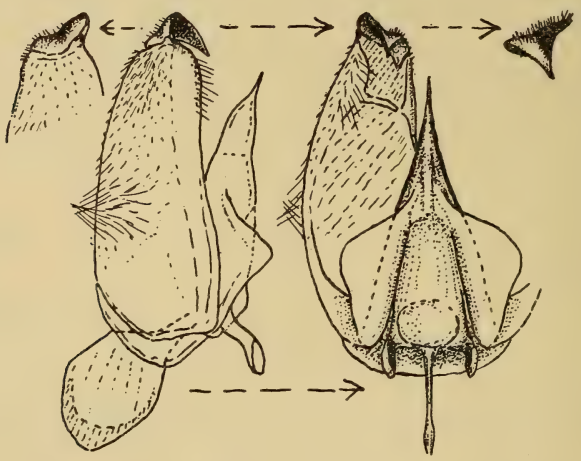
The *hypopygium* of the ♂ (text-fig. 238) with fine, short hairs on basal parts, but with a few longish ones towards and in neck region; beaked apical joints slender, cylindrical, and tapering to a fine point, shaped as shown in figure and with only a few, sparse, fine bristly hairs above on inner upper side; aedeagus directed outwards, tapering to a point, the apical half almost at right angles to basal half; lateral struts very elongate, projecting on each side; basal strut chopper-shaped.

Locality.—Cape Province: Western Province. (In the South African Museum.)

5 ♂♂ 7 ♀♀ *C. chrysonotum* n. sp.

Body black; palps with the basal joints yellowish to brownish yellow; scutellum with the hind margin or even posterior half ferruginous red, more distinct in ♀♀; anterior pronotal angle on each side and posterior calli also reddish; abdomen with the hind margins of the segments above and below comparatively broadly ochreous to reddish yellow, slightly broader on sides of segments above; legs entirely yellowish in ♀♀ or with the femora at least only darkened at extreme bases or only on front ones, in ♂♂ blackened to much beyond middle, the front and middle ones almost entirely dark, with the last 3 tarsal joints blackish in both sexes and with the spines on tibiae black, the single long spur on middle tibiae apically below yellowish and dark-tipped; pubescence above fairly dense on thorax, especially in ♂♂, shortish in both sexes but longer in ♂♂, predominantly dull brassy to golden yellowish from side and with a slight brownish tint in certain lights, that on sides of abdominal segment 1 and on sides of abdomen in ♂♂ slightly paler and more sericeous, with the short depressed pubescence or scaling on abdomen in ♂♂ sparser, sericeous yellowish to pale golden yellowish, that on abdomen above in ♀♀ shorter, denser, deep golden yellowish, composed mainly of short, depressed scaling, with the pubescence on

head above in ♀♀ denser and deep golden, the hairs on sides of face, genae, and head below sericeous yellowish, becoming paler and more whitish on head below, slightly longer and denser in ♂♂, the hair on body below somewhat sparse on pleurae, scarcely paler yellowish than above, only slightly paler on pectus, that on venter in ♂♂ apparently slightly more sericeous whitish, especially towards the base; wings slightly more distinctly subopaquely pale yellowish white to whitish than in *poecilopterum*, becoming slightly more



TEXT-FIG. 239.—Side view, greater part of ventral view of hypopygium, and dorsal and hind views of beaked apical joint of ♂ *Crocidium chrysonotum* n. sp.

distinctly yellowish in costal part, with the following distinct dark blackish brown infuscations: an elongate spot at common base of second and third longitudinal veins before the fork, a spot near apex of costal cell, often a distinct spot at about middle of first basal cell, a spot on apical cross vein of first basal cell, another at apex of second basal cell, a dark elongate spot along the veins separating the discoidal from the second and third posterior cells, a spot at base of second submarginal cell, sometimes extending faintly to end of second longitudinal vein and in addition sometimes distinct darker infuscations along the posterior veins as well as a darker cloudiness at bases of first submarginal and discoidal cells and even at base of second basal cell, the latter markings sometimes very distinct and spot-like in some specimens, with the veins dark brownish in apical half, becoming paler and yellowish towards base; halteres pale yellowish, with very pale yellowish or almost whitish

knobs. *Head* with the eyes in actual contact above in ♂ for a distance at least 1½ times as long as tubercle, the space on vertex in ♀ about, or a little less than, 3 times as broad as tubercle; eyes in ♂ with the facets in upper three-quarters coarser than those below and well marked off; frons in ♀ depressed medially in front, small and depressed in ♂; antennae with joint 1 short, only a little more than 2 times as long as 2, with 3 somewhat laterally compressed, much broadened at about, or just before, middle and also broader basally than apically, somewhat spindle-shaped, more humped in appearance from side, the apical part more rapidly narrowed above, with 3 distinct terminal elements visible (a small basal joint, a much longer second one, and a terminal style); proboscis about 1 mm. long, with the palps quite half as long as proboscis. *Hypopygium* of ♂ (text-fig. 239) entirely different from that of *poecilopterum* (cf. text-fig. 238) with the beaked apical joints flattened and twisted as shown in the figures (extreme left figure from above, the second on left from side, the first towards right from below, and the extreme right one from directly in front), with the hairs on dorsum sparse and short; aedeagus sharply pointed apically and the flanges connecting aedeagus to base of basal parts broad and flattened; lateral struts directed somewhat obliquely downwards and much shorter than in *poecilopterum*.

Types in the South African Museum.

Length of body: about 4½–5½ mm.

Length of wing: about 3½–5 mm.

Locality.—Namaqualand: Kamieskroon (Mus. Exp., Sept. 1930) (Types); (Mus. Exp., Nov. 1936); Garies Distr.; Klip Vlei (Mus. Exp., Nov. 1931). S.W. Karoo: Michell's Pass (Simmonds, 1–5/12/30) (British Museum).

This species is easily distinguished from *poecilopterum* by the characters given in the key, but especially by the less rounded spots on the wings, absence of distinct rounded spots at apices of anal and axillary cells and at end of second longitudinal vein, and entirely different hypopygium.

1 ♀ *C. pterostictum* n. sp.

Body black; humeral part surrounding anterior spiracle, posterior calli, posterior half of scutellum, hind margin of tergite 1, greater part of abdomen above from segments 2–4, the hind margins of segments 5 and 6 and broadish hind margins of venter yellowish red; legs predominantly pale yellowish red, the coxae and extreme bases of femora

black, the apices of tibiae and greater part of tarsi blackish or black; pubescence rather long and dense on head, scutellum and sides of abdomen towards base, that on occiput, ocellar tubercle, frons, on antennal joint 1, sides of face, thorax above and on scutellum deep orange red or reddish golden, the dense pubescence on face, genae and head below, that on mesopleuron, pleurae, coxae and predominantly on abdomen, especially on sides of tergite 1 and on basal half and on venter white, with some intermixed whitish bristly hairs on sides of scutellum as well, with the hair-like scaling on frons, thorax above, scutellum and more densely on abdomen above predominantly deep orange or reddish golden, with some intermixed whitish hairs and scaling on thorax in front towards the anterior end, with much whitish scaling on sides of abdomen above, especially towards apex, and denser white scaling on venter, with the scaling on legs also white, dense on femora, with the spicules on tibiae, excepting only long yellowish spur on middle ones, black; wings rather broad, opaquely whitish but with a blackish transverse band across from middle of costal cell, base of second and third longitudinal veins, across middle of first basal cell, across apical part of second basal cell to apex of anal cell, the band not continuous but more or less constituted of spots of which the one at middle of first basal cell and the one on apical cross vein of second basal cell are blacker and more distinctly spot-like, while the rest of this dark band at apex of anal and axillary cells is in form of diffused smoky cloudiness, with dark blackish spots also on discal cross vein, at base of third posterior cell, on apical cross vein of discoidal cell, at base of vein between submarginal cells and at apex of costal cell as well as a blackish brown cloudiness from apex of costal cell across marginal and first submarginal cells, across apical part of second submarginal cell, across middle of first posterior cell, middle of second posterior cell to apical two-thirds of third posterior cell into apical part of fourth posterior cell, with this cloudiness more or less broken up into spot-like infusions in these cells, with even indications of darker spot-like infuscations at the ends of the veins, with the veins themselves yellowish in the unspotted areas of wings, very pale or ochreous yellowish towards base, with the squamae opaquely yellowish white to whitish and white-fringed; halteres yellowish, with very pale yellowish knobs. *Head* with the interocular space above quite 3 times as broad as ocellar tubercle; frons with the transverse furrow distinct; antennae with joint 1 a little more than 3 times as long as 2, with 3 about $1\frac{1}{2}$ times as long as 1 and 2 combined, gradually narrowed apically, with the first terminal joint conspicuous, cylindrical and

bearing a fine hair-like style; proboscis shortish and stout, about 1½ mm. long; palps elongate, quite half or slightly more than half as long as proboscis, the basal joint very long and slender, the apical one very short, broad and oval.

Type in the South African Museum.

Length of body: about 6 mm.

Length of wing: about 6 mm.

Locality.—Nieuwveld Karoo: Victoria West Distr.; Melton Wold (Mus. Staff, Oct. 1935).

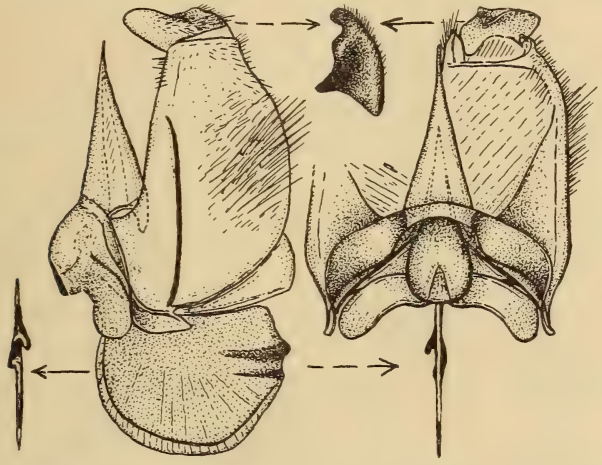
This species superficially resembles *chrysonotum*, but may at once be distinguished by the slightly different arrangement of the darker areas on wings, by the cloudy spots forming a band across cells towards apical part of wings, by the denser white pubescence on face and head below, and by the very deep orange red or reddish pubescence and scaling on body above.

6 ♂♂ 8 ♀♀ *phaeopteralis* n. sp.

Body black; posterior calli, slightly more than hind half of scutellum, the humeral angle and to a certain extent a spot surrounding anterior spiracle just below humeral angle, a spot just below base of wings and to a certain extent the small area just below wings, the hind margins of tergites and the hind margins of sternites reddish brown to reddish yellow, the posterior cell, hind part of scutellum, spot below base of wings and the hind margins of tergites sometimes more yellowish, with the hind margins not very broad, but distinctly broader in ♀♀; legs with the femora black to beyond middle, sometimes almost entirely black, usually predominantly so in ♂♂, with the apical part or apex of femora, the tibiae and bases of tarsi yellowish, the apices of the tibiae and greater part of tarsi blackish or black, with the spicules on tibiae also black, only long spur apically below on middle ones slightly more yellowish; pubescence shortish, not very dense, but distinctly denser in ♂♂ and also longer on abdomen in ♂♂, the face in both sexes almost bare and the pleurae almost or entirely bare, no metapleural tuft present, with the short bristly hairs on ocellar tubercle in both sexes, those on disc of thorax in ♂♂, some often at base of scutellum in some ♂♂, the sparse and shortish ones on abdomen above in ♂♂ and some across hind margins of tergites in ♂♂, those on coxae in both sexes and the short somewhat recumbent hairs on front and middle femora above in ♂♂ black, with these hairs on thorax above, however, showing paler gleams

due to an admixture of more yellowish golden or brownish hairs, with the bristly hairs on occiput, frons and entire body above in ♀♀, those on sides of thorax, base of thorax and on scutellum in ♂♂, the sparse ones on mesopleuron and those on venter in ♀♀ deep orange or reddish golden, those on thorax in ♂♂, however, paler, gleaming more whitish in certain lights, the hairs on head below appearing blackish but gleaming more golden or even whitish in certain lights, the short and very sparse ones on genae in ♂♂ whitish, the hairs on propleural part, mesopleuron and predominantly on abdomen in ♂♂ whitish, sparse ones on propleural part and to a certain extent on sides of abdomen basally in ♀♀ also sericeous whitish, with the hair-like scaling on frons, thorax above, scutellum and abdomen above denser in ♀♀, gleaming deep orange or reddish golden in ♀♀, but with a considerable admixture of gleaming whitish scaling on thorax and on abdomen in ♀♀, that on abdomen, especially on sides and towards base appearing whitish, with the scaling on body above in ♂♂ and on venter in both sexes predominantly gleaming whitish, with the scaling and hairs on femora in ♂♂ predominantly silvery or sericeous whitish, the scaling on femora in ♀♀ becoming more yellowish towards apices, the fine hairs on tibiae, especially above, in both sexes dark; wings rather broad, dusky, markedly subopaquely smoky greyish in both sexes, with the costal cell, base, and a transverse spot from costal cell across fork of second and third longitudinal veins to apical part of second basal cell more subopaquely whitish, with the veins blackish, the costal vein, but especially the secondary vein in costal cell and the extreme basal parts of veins at base of wing, ochreous yellowish, with the parts of veins at apex of costal cell, the apical cross veins of basal cells, the basal part of third longitudinal vein (where it joins second longitudinal one) and at base of this vein where it branches off from first longitudinal vein, conspicuously black and diffusely spot-like, sometimes also with the apical cross vein of discoidal cell and even base of second submarginal cell diffusely black, these darker parts of the veins giving the wings an appearance of having a transverse blackish infusion from apical part of costal cell across to basal cross vein of fourth posterior cell and even down vein between fourth posterior cell and anal cell, with the discal cross vein very near apex of discoidal cell, with the squamae opaquely whitish and fringed with whitish hairs; halteres yellowish brown, with very pale yellowish to yellowish white knobs. *Head* with the eyes in ♂♂ in actual contact above for a distance about 1½–2 times as long as tubercle, the interocular space in ♀♀ a little less than 3 times

as broad as ocellar tubercle; eyes in ♂♂ with the upper two-thirds at least more coarsely faceted than lower part; frons medially but also transversely depressed towards apical part, slightly depressed in ♂♂; face shortish; buccal rims shining; antennae with joint 1 only a little more than 2 times as long as 2, and with sparse, short, black hairs above, with 3 nearly 2 times as long as 1 and 2 combined, somewhat laterally compressed and, from side, slightly curved or humped in appearance, the lower basal part slightly prominent



Text-fig. 240.—Side view and ventral view of hypopygium and dorsal views of beaked apical joint and basal strut of ♂ *Crocidium phaeopteralis* n. sp.

where the joint is also broadest, then scarcely narrowed for greater part of length, only the apical part being distinctly narrowed, with the first terminal element short, cylindrical and joint-like, bearing a fine hair-like style; proboscis shortish, straight, comparatively stout, the labrum-epipharynx not much shorter than labial part, the labella pointed apically and with sparse spinules, the entire length of proboscis about $1\frac{1}{3}$–$1\frac{1}{2}$ mm. long; palps rather elongate, slender, quite half as long as proboscis, the apical joint ovate and much shorter and broader than basal one, with fine short hairs. *Scutellum* somewhat thick and tumid. *Hypopygium* of ♂ (text-fig. 240) with the beaked apical joints flattened and leaf-like, broadish and shaped as shown in figures (side, ventral and dorsal views); basal strut peculiarly sinuate along its dorsal margin (seen from side, from directly in front (ventral) and from dorsal view). The hypopygium of this species resembles that of *chrysonotum* (cf. text-fig. 239) in having flattened beaked apical joints.

Types in the South African Museum.

Length of body: about 5–6 mm.

Length of wing: about 5–6 mm.

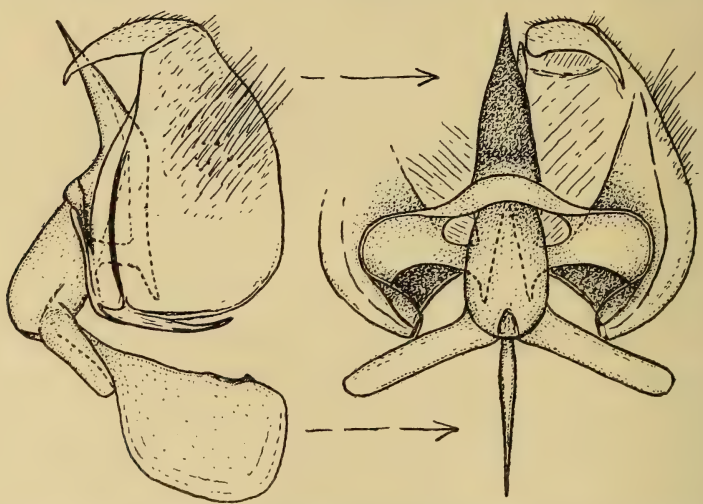
Locality.—Nieuwveld Karoo: Victoria West Distr.; Melton Wold (Mus. Staff., 1935).

A species easily recognised by the dusky or dark smoky wings. This species was taken on flowers of Mesembryanthemums.

Section 2.

6 ♂♂ *C. melanopalis* n. sp.

Entire body, including scutellum and legs, black; frons and face brilliantly shining black; pubescence rather dense, but longish and



Text-fig. 241.—Side view and greater part of ventral view of hypopygium of ♂ *Crocidium melanopalis* n. sp.

denser on occiput, head below, scutellum, abdomen and on coxae, that on abdomen above and below fairly dense and conspicuous, entirely frosty white, with slight sericeous gleams, with the hair-like scaling also entirely white, sparse on thorax but slightly more dense on sides of abdomen above and on venter, also sparse on pleurae, with the more flattened scaling on legs denser, but also whitish to cretaceous whitish; wings hyaline, iridescent, but with a scarcely perceptible milky whitish tint in certain lights, with the base, alula, and costal cell slightly more subopaquely whitish, with all the veins, even up to

extreme base of wings, and the border of wings entirely and conspicuously very dark blackish brown to black, with the squamae subopaquely whitish and fringed with white hairs; halteres whitish or dirty whitish, with the knobs black above and also much darkened below. *Head* with the eyes in actual contact above for a distance about equal to or subequal to length of ocellar tubercle, the inner margins of eyes then rapidly diverging anteriorly; coarser upper facets imperceptibly merging into finer lower ones; frons slightly depressed, small and triangular; antennae with joint 1 slender, a little more than 3 times as long as 2, with 3 quite 1½ times as long as 1 and 2 combined, slender, rod-like or only very little broader at base in some specimens, with the first terminal element distinctly joint-like, visible, but small, conical, situated a little towards outer side and narrower than apex of joint 3, bearing a fine style; face rather conically prominent; probiscis rather long, slender, about 2-2⅓ mm. long, with the labrum-epipharynx nearly as long as labial part and very sharply pointed; palps slender, the apical joint very short and only slightly broader than basal one. *Hypopygium* (text-fig. 241) with the beaked apical joints elongate and pointed; lateral rami as shown in figures; lateral struts almost rod-like.

Type in the South African Museum.

Length of body: about 3½-4⅔ mm.

Length of wing: about 4-4⅔ mm.

Locality.—Nieuwveld Karoo: Beaufort West Distr., Leeukloof (Mus. Staff, Oct 1935).

Recognised by the entire black body and legs, the blackish veins of wings and black knobs of halteres.

3 ♀♀ *C. nitidilabris* n. sp.

Body, including scutellum and legs, black; knees pallid or yellowish and long apical spur on middle tibiae below also yellowish; a broadish transverse band across facial region and genae ivory yellowish; frons and face and upper parts of genae brilliantly shining black, greater part of face smooth; pubescence sparse, longish and dense only on head below, sides of front part of thorax, on occiput, scutellum, front coxae and to a certain extent on the others, predominantly sericeous whitish on body below, on scutellum and abdomen, that on disc of thorax with sericeous yellowish to brownish golden gleams, that on ocellar tubercle even darker, with the depressed scaling on sides of frons, sides of thorax and venter sericeous whitish, that on disc of

thorax and on abdomen above gleaming more sericeous yellowish in certain lights, that on coxae and legs sericeous whitish becoming pale dull yellowish on hind femora above; wings hyaline, iridescent, with a scarcely perceptible milky tint in certain lights, the base, alula and costal cell slightly more subopaquely whitish, with the veins very dark blackish brown, becoming paler and distinctly pale yellowish at bases of wings, with the squamae subopaquely whitish and fringed with white hairs; halteres dirty yellowish, with very pale yellowish white to almost white knobs. *Head* with the interocular space only a little more than 2 times as broad as ocellar tubercle; frons gradually widening anteriorly, medially depressed, especially anteriorly; face rather broad and prominent, spout-like projecting; antennae with joint 1 about, or a little more than, 3 times as long as 2, with 3 slightly more than $1\frac{1}{2}$ times as long as 1 and 2 combined, slender and rod-like, only imperceptibly thickened at base, with the first terminal element small, conical and bearing a fine hair-like style; proboscis slender, becoming thicker basally, about 2 mm. long; palps long, slender, with the apical joint very short and ovate.

Type in the South African Museum.

Length of body: about 4-5 mm.

Length of wing: about 4-$4\frac{1}{2}$ mm.

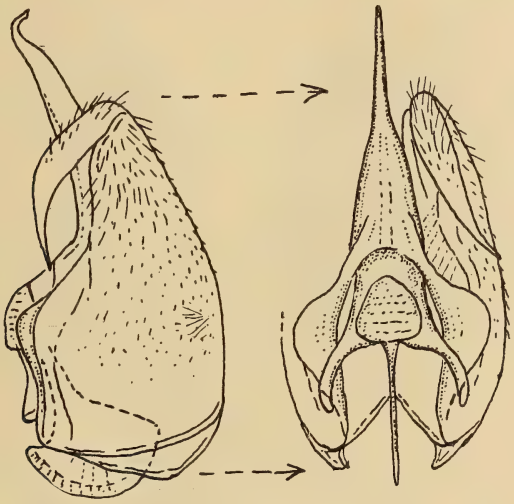
Locality.—Central Karoo: Murraysburg Distr. (Mus. Staff, Nov. 1935).

1 ♂ *C. nigrifacies* Bezz.

(P. 93, Ann. S. Afr. Mus., vol. xviii, 1921; Paramonow, p. 184, Trav. Mus. Zool. Kiev., No. 11, 1931.)

This unique ♂-specimen and type is somewhat damaged and denuded. It is chiefly characterised by the black body and legs, the abdomen, however, with almost imperceptible pallid hind margins; face rather short and broad and brilliantly shining, smooth; pubescence sparse, but longish on sides of face, genae, head below, on thorax above, scutellum, coxae and venter, predominantly white, but that on ocellar tubercle and on each side of face dark and blackish brown, that on thorax above more yellowish brown, appearing slightly reddish brown in certain lights and with intermixed dark hairs; wings vitreous hyaline, with the veins very dark or blackish brown, showing up conspicuously, becoming paler and more pale yellowish brown to yellowish at base, with a very feeble and scarcely perceptible darker infuscation on apical cross veins of first and second basal

cells, with the squamae subopaquely pellucid and fringed with white hairs; halteres with the knobs brownish above and below. *Head* with the eyes in contact above for a distance about $1\frac{1}{2}$ times as long as ocellar tubercle, with the coarser upper facets passing imperceptibly into finer lower ones; antennae with joint 1 about 3 times as long as 2, with 3 rather shortish and not quite $1\frac{1}{2}$ times as long as 1 and 2 combined; proboscis remarkably slender, about $2\frac{1}{2}$ mm. long; palps conspicuous, rather long, with the long basal joint becoming



Text-fig. 242.—Side view and greater part of ventral view of hypopygium of ♂ *Crocidium nigrifacies* Bezz.

broader and more strap-like in apical half, with fairly dense pubescence, with the apical joint slightly longer than in other species and longer than antennal joint 2. *Hypopygium* (text-fig. 242) resembles that of *poecilopterum* (cf. text-fig. 238) in the elongate, slender and sparsely-haired beaked apical joints; aedeagus is, however, longer and more tubular in apical part, where it is rapidly bent upwards.

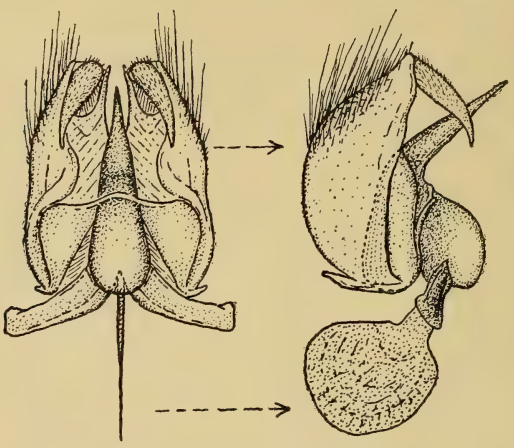
Locality.—S. Rhodesia: Bulawayo (Pead, Sept. 1911).

This species is near *karooanum*, but differs in having a smooth brilliantly shining face, dark hairs on sides of face, entirely black legs, etc.

1 ♂ 10 ♀♀ *C. phaenochilum* n. sp.

Body, including scutellum and legs, black; knees may be very obscurely yellowish or brownish; hind margins of abdomen may be

very narrowly or obscurely pallid in some ♀♀, entirely black in ♂-specimen; frons and face as well as sides of face brilliantly shining black in ♀♀, and face also brilliantly shining black in ♂; broad transverse band across facial region and genae from side to side in ♀♀, and even extending to front part of head below, ivory yellowish to ivory whitish; pubescence on the whole sparse, longer on head below, sides of thorax in front of wings and on scutellum, but also long on coxae and abdomen, that on thorax above shorter in ♀♀, that



Text-fig. 243.—Ventral and side views of hypopygium of ♂ *Crocidium phaenochilum* n. sp.

on occiput and thorax above, especially sides and towards base with golden or brownish golden gleams, that sparsely on frons, on ocellar tubercle appearing dark especially in ♀♀, that on genae, head below, coxae, scutellum, abdomen and legs silvery whitish, without any hairs on convex middle part of face, with the scaling on occiput and frons yellowish grey in ♀♀ at least, the tuft of flattened scales on each side of frons anteriorly in ♀♀ cretaceous or frosty white, the scaling on thorax and scutellum (where not denuded) straw-coloured yellowish in ♀♀ at least, the scaling on abdomen above and the flattened scaling on genae, sides of head behind eyes, on pleurae, venter, coxae and legs denser, more conspicuous and cretaceous or frosty whitish; wings hyaline, iridescent, with a very faint milky whitish tint in certain lights, with the veins brownish to dark brown, becoming more distinctly yellowish in costal part and base, with the discal cross vein much beyond the middle of discoidal cell at less than apical third of discoidal cell, with the apically acute anal

cell shortly stalked, with the slightly whitish opaque squamae fringed with white hairs; halteres with the almost whitish or very pale yellowish knobs, darkened above in ♂. *Head* with the eyes in ♂ in contact above for a distance nearly, or about, 1½ times as long as ocellar tubercle, the interocular space in ♀♀ on vertex a little less than 3 times as broad as tubercle; upper coarser facets of eyes in ♂ well marked off from finer lower ones; frons in ♀♀ distinctly transversely depressed anteriorly; face somewhat prominently convex above buccal cavity and more so than in the *poecilopterum*-series; genae broad and broader lower down; antennae with joint 1 quite 3 times as long as 2, the sparse hairs on them whitish in ♂ and dark in ♀♀, with joint 3 rod-like, almost equally broad throughout, with only a small terminal joint, bearing a short style, visible; proboscis comparatively long and slender, conspicuous, thinner or attenuated apically, about 3–4 mm. long; palps remarkably short, distinctly shorter than antennal joints 1 and 2 combined and confined to base of proboscis, very much shorter and thinner than in most other species of *Crocidium*. *Hypopygium* of ♂ (text-fig. 243) has some resemblance to that of *melanopalis* (cf. text-fig. 241), the beaked apical joints, however, longer and more slender and basal strut is differently shaped, etc. It is nearer that of *karooanum* (cf. text-fig. 245) in some respects.

Types in the South African Museum.

Length of body: about 4–5 mm.

Length of wing: about 4½–5 mm.

Locality.—Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936) (Types). South West Africa: Great Namaqualand; Aus (Turner, Dec., 1929) (in the British Museum).

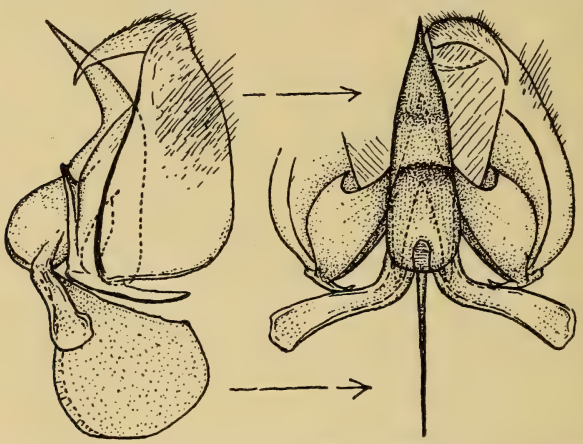
This species is easily recognised by the very long and slender proboscis, very short palps, the smooth and shining face, the tuft of frosty white scaling on each side of antennae in ♀♀, transversely depressed frons in ♀♀, etc. It can only be confused with the following species from which it may at once be distinguished by the long and slender proboscis and almost entirely black body.

1 ♂ 1 ♀ *C. depressifrons* n. sp.

These two somewhat denuded specimens obviously belong to the same category as *phaenochilum* where the frons is transversely depressed in the ♀♀.

Body, including legs and scutellum, black; narrow hind margins of abdomen in both sexes and also narrow hind margin of scutellum

in ♀ pallid or yellowish; knees also yellowish; a broad transverse band across facial region and genae in ♀ ivory yellowish; frons and face in ♀ and face medially in ♂ smooth and brilliantly shining black; pubescence rather sparse, longish only on genae in ♂, on head below in both sexes, on scutellum in ♂, on abdomen in ♂ and on coxae in both sexes, entirely sericeous whitish on body below, on scutellum and abdomen in both sexes, that on disc of thorax more golden brownish, with the scaling on disc of thorax in ♀ especially more



TEXT-FIG. 244.—Side view and greater part of ventral view of hypopygium of ♂ *Crocidium depressifrons* n. sp.

golden above and whitish on sides, that on abdomen above with more sericeous whitish gleams even in ♀, that on body below and on legs sericeous whitish in both sexes and with a tuft of frosty white scales on each side of antennae in ♀; wings hyaline, iridescent, with an almost imperceptible milky tint in certain lights, the base and costal cell more subopaquely pale yellowish white or whitish, with the veins brownish to dark brownish, becoming pale yellowish basally, with the squamae pellucid and white-haired; halteres dirty yellowish or brownish yellow, with almost white knobs. *Head* in ♂ with the eyes in actual contact above for a distance about $1\frac{1}{2}$ times as long as tubercle, with the coarser facets in upper two-thirds well marked off from finer lower ones; interocular space in ♀ a little more than 2 times as broad as tubercle; frons in ♀ with a distinct transverse depression just before middle from side to side; face with the medial convex part in ♂ well marked off, broader in ♀; antennae with joint 1 a little more than 3 times as long as 2 in ♀ and about 3 times in ♂, with 3 tending to be more humped in appear-

ance in ♀, appearing broadest just beyond middle, less perceptible in ♂; proboscis about 2 mm. long, slender apically; palps much reduced, very much shorter and much more slender than in any other species except *phaenochilum*, not or scarcely longer than antennal joints 1 and 2 combined, inconspicuously thin, with the apical joint very short. *Hypopygium* of ♂ (text-fig. 244) with the beaked apical joints elongate and pointed; lateral ramus from each basal part broad, flange-like and produced into a spine-like process (as in figure); lateral struts elongate and well developed as in *poecilopterum*.

Types in the South African Museum.

Length of body: about 3–4 mm.

Length of wing: about 3½–4 mm.

Locality.—Central Karoo: Murraysburg Distr. (Mus. Staff., Nov. 1935).

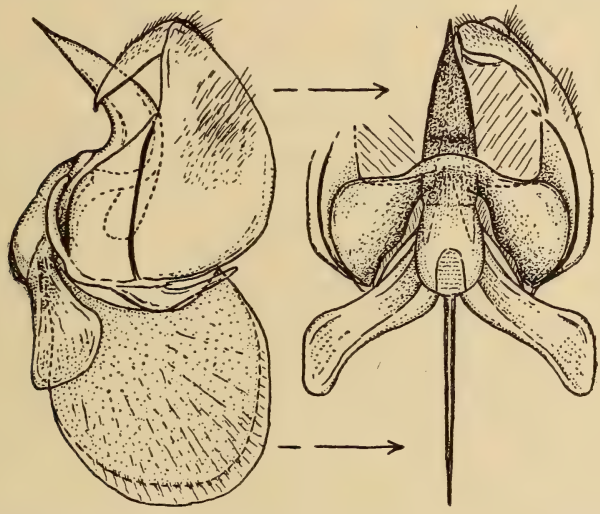
Easily recognised by its inconspicuous palps and transversely depressed frons in ♀. From *phaenochilum* it is distinguished by the slightly longer palps, much shorter proboscis, narrower transverse ivory whitish or yellowish band across facial part in ♀, yellowish hind margin of scutellum in ♀, broader and more distinct pallid or yellowish hind margins of abdomen even in ♂, entirely white knobs to the halteres in ♂ and straighter second longitudinal vein.

19 ♂♂ 44 ♀♀ *C. karooanum* n. sp.

Greater part of body, including scutellum, usually black; broadish hind margins of tergites and sternites ochreous yellowish, narrower and sometimes very narrow in ♂♂, that on side of tergite 1 the broadest and those above sometimes finely edged whitish; the scutellum and even apical parts of first antennal joints, the humeral angle on each side, a spot on each side above front coxae, an indefinite infusion in front of wings on each side and more or less the sutural parts on pleurae in some ♀♀ also yellowish; frons and face in ♀♀ tending to be shining black; facial part of head in ♀♀ broadly ivory yellowish or yellowish across buccal cavity and genae, the face above buccal cavity usually black or dark, but the entire facial region and genae from level of antennae may be ochreous yellowish in some ♀♀, the head below, however, black; legs with the femora almost entirely black in ♂♂, but with the apices of especially the middle and hind ones in some ♀♀ yellowish, sometimes the entire hind femora and greater part of middle ones in some ♀♀ are also yellowish, with the front

tibiae almost entirely black in ♂♂ and blackened to a variable extent in ♀♀, sometimes almost entirely yellowish in some ♀♀, with the basal part or basal half of middle tibiae in ♂♂, greater part of or even entire middle ones in ♀♀ and the entire or greater part of hind tibiae in both sexes as well as bases or basal halves of tarsi in both sexes yellowish, with the apices of middle and hind tibiae darkened or blackened to a variable extent in both sexes but tending to be more extensively darkened in ♂♂, with all the spicules and spurs on tibiae, excepting only long, yellowish black-tipped one apically on middle tibiae below, black; pubescence fairly dense, denser and longer in ♂♂, fairly dense on genae, head below, occiput, scutellum and on coxae in both sexes, and on abdomen in ♂♂, with much hair on meso- and sternopleurae in front, especially in ♂♂, and also with longish hairs on front femora in both sexes, that on head below, on genae and face and entire body below sericeous whitish in both sexes, that on abdomen above and below in ♂♂ and predominantly on abdomen of ♀♀ also sericeous to silvery whitish, that on ocellar tubercle, sides of frons and as a short tuft on each side of antennae in ♀♀ and the fine pubescence on antennal joint 1 very dark, dark brownish to black, that on ocellar tubercle, occiput, thorax above and scutellum in ♂♂ yellowish brown to brownish or reddish golden, having a more ochreous tint in certain lights and darker tint in others, with some whitish intermixed hairs on pronotal part and sides and usually with whitish hairs across hind margin of scutellum, with the shorter erect pubescence on thorax, the longer ones on occiput and towards base of thorax and on scutellum in ♀♀ sericeous to deep golden yellowish, that on scutellum usually less deep golden than on disc of thorax, with all these hairs in some ♀♀ only very pale sericeous yellowish, those on scutellum almost whitish, with the hair-like scaling on frons, thorax above and scutellum in ♀♀ sericeous yellowish to deep golden yellowish, sometimes very pale and almost silvery in some ♀♀, that on abdomen above in ♀♀ slightly more yellowish towards base and paler towards apex, that on body above in ♂♂ very sparse, sericeous yellowish to golden on thorax and scutellum and whitish when present on abdomen, that on head behind eyes, on pleurae and coxae and densely on venter in both sexes entirely whitish, denser in ♀♀, the dense scaling on legs predominantly silvery whitish, that on middle and hind femora above, in ♀♀ at least, with a more yellowish or ochreous sheen, with a very fine silvery tomentum sometimes visible on yellow parts of facial region in ♀♀. *Wings* vitreous to greyish hyaline, sometimes iridescent,

with the base, alula and costal cell slightly subopaquely whitish, with the rudimentary basal comb sericeous yellowish, with the veins yellowish in costal region and base, darker and more brownish to blackish brown towards apex, with a distinct darker spot-like infuscation on apical cross veins of first and second basal cells in both sexes, with the squamae subopaquely to opaquely whitish and fringed with white hairs; halteres pale yellowish white, with almost white



TEXT-FIG. 245.—Side view and greater part of ventral view of hypopygium of ♂ *Crocidium karooanum* n. sp.

knobs. *Head* with the eyes above in ♂♂ in actual contact or contiguous for a distance about or nearly 2 times as long as ocellar tubercle, with the facets in more than upper half of eyes in ♂♂ much coarser and well marked off from finer lower ones; interocular space in ♀♀ about, or a little less than, 3 times as broad as tubercle; frons in ♀♀ longitudinally depressed, slightly more broadly so anteriorly; face slightly conically prominent, distinctly more so in ♀♀, not entirely bare, with some pubescence medially even in ♀♀; antennae with joint 1 quite 3 times as long as 2, with 3 quite 1½ times as long as 1 and 2 combined, more or less slightly curved, having a slight humped appearance, the hump just beyond middle above, the joint more or less equally broad from side, the apical part, however, narrowed, with only a single, small, conical or cylindrical terminal joint, bearing a fine style, visible; proboscis tending to be rather stoutish, about 1½–3 mm. long; palps long, slender and conspicuous, with joint 1

ovate, shorter than the long basal one and also slightly broader. *Hypopygium* of ♂ (text-fig. 245) with the lateral struts and basal strut markedly developed, with the lateral rami broad and beaked apical joints elongate. There is a distinct similarity between the hypopygium of this species and that of *phaenochilum* (text-fig. 243).

Types in the South African Museum.

Length of body: about 4–6 mm. (small forms only about 3 mm.).

Length of wing: about 4–6 mm. (small forms only about 3 mm.).

Locality.—Nieuwveld Karoo: Victoria West Distr.; Melton Wold (Mus. Staff., Oct. 1935) (Types). Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931); Kamieskroon (Mus. Exp., Nov. 1936). Little Karoo: Willowmore (Brauns, 18/10/20) (Transvaal Museum).

Easily recognised by the hyaline or greyish hyaline wings showing two faint, but distinct, spot-like infuscations on apical cross veins of basal cells, by the yellowish costal veins and yellowish brown pubescence on thorax and scutellum. This species may prove to be the same as *immaculatum* Bezz. (in lit.), from Willowmore and referred to on p. 93, Ann. S. Afr. Mus., vol. xviii, 1921, and p. 77, Broteria (Ser. Zool.), xx, Fasc. II, 1922. As there are more than one species with unspotted wings and as *immaculatum* Bezz. has never been properly described (*see* also Paramonow, p. 184, Trav. Mus. Zool. Kiev, No. 11, 1931), it is advisable to describe this species separately. As is evident from the description, this species is slightly variable in size, in the extent of the yellow on body and legs especially in ♀♀, in the coloration of the pubescence on the thorax and the distinctiveness of the spots on cross veins. Some specimens from Namaqualand appear to differ from the more typical form in having slightly more yellow on the body and legs in the ♀♀ at least. The entire facial region, excluding the face medially, is often yellowish and apparently more distinctly ochreous yellowish; apices or apical halves of the first antennal joints, the scutellum, humeral part of thorax on each side and even infusions on pleurae are sometimes yellowish in such ♀♀. The greater part of middle femora, the entire hind femora and all the tibiae in these ♀♀ also tend to be yellowish, and the hind margins of the abdomen are also broader yellowish. The ♂♂ from Namaqualand, on the other hand, do not appear to differ from the typical forms. Some ♀♀ from the Nieuwveld Karoo also differ from the typical form in having almost the entire hind tibiae darkened.

Adelogenys n. gen.

Three species, in the material before me, differ to such an extent from *Crocidium* and the descriptions of *Apatomyza* Wied. that the erection of a separate genus is necessary to contain them. This new genus obviously belongs to the *Crocidium*-group, differing from the above-named two genera in important characters. The chief generic characters are:—

Body elongate, Therevid or Empid-like, with much yellow or red, the thorax convex above, convexly rounded (when viewed from side), thus markedly humped as in *Crocidium*, more or less laterally compressed, the pleurae high and the front coxae elongated in conjunction with the high pleurae, the scutellum also raised above level of first abdominal tergite, the metanotum thus exposed even to a greater extent than in *Crocidium*, with the head globular or spherical and the abdomen elongate; pubescence short and sparse in both sexes, composed of sparse, short, erect hairs and denser, depressed, hair-like scaling, the erect hairs more conspicuous on occiput, sides of head behind eyes, on head below, on base of thorax, on scutellum, on abdomen and to a certain extent on coxae, with very sparse hairs on pleurae, the greater part of pleurae being bare or patchily covered with scaling, the scaling denser on body above, on venter, coxae and legs. *Head* markedly spherical, the occipital region scarcely or only slightly depressed or flattened, and very much less so than in *Crocidium*, more like that of *Apatomyza* (as figured by Becker); ocelli arranged in a triangle on a slight prominence or tubercle, more distinct in ♂♂; eyes almost circular from side, convex and more so in known ♂♂, separated by much more than width of ocellar tubercle in ♀♀, narrowly separated above in known ♂♂; frons in ♀♀ more or less equally broad throughout, the inner margins of eyes parallel or subparallel and not broadly diverging apically and down the sides of face as in *Crocidium*, the distance across buccal cavity thus equal or scarcely broader than frons, gradually diverging apically in known ♂♂, medially depressed behind antennae in ♀♀ and slightly less so in known ♂♂, not brilliantly shining; face rather short, but somewhat prominent or conical, not smooth and brilliantly shining black as in some species of *Crocidium* ; genae much reduced, almost absent, scarcely evident, represented along the inner margins of eyes as a narrow line, almost wanting or even obliterated at about the middle, only narrowly visible on each side above and below at level of upper and lower parts of buccal cavity, the narrow

groove separating genae from buccal rims, thus practically only separating inner margins of eyes from buccal rims, these rims themselves at middle at least representing false genae; antennae with the first joints close together, joint 1 short, not longer than about 3 times as long as 2, with only short, sparse hairs, with 3 elongate and longer than 1 and 2 combined, broadest before middle and nearer base, more rapidly narrowed to apex along lower edge, more than the apical half being slender, the joint sometimes appearing slightly humped and even subspindle-shaped, ending apically in 2 terminal joints, the apical one of which is longer and bears a style; proboscis short or long, relatively stoutish; palps elongate, slender, projecting considerably and conspicuously as in *Crocidium*, the basal joint very elongate and slender, and the apical joint very much shorter or very short, broad and ovate or clavately broadened apically, with fine hairs. *Wings* slightly tinged pale greyish brown or even distinctly brownish, rather elongate, narrowish at base, with the alula reduced or much reduced, at least not broadly lobate as in *Crocidium*, with the axillary lobe also much narrower than in *Crocidium*, not triangularly lobate, only arcuately rounded, with 4 posterior cells of which the first is broadly open posteriorly, with two submarginal cells and an apically acute and shortly stalked anal cell, with the basal comb wanting, with the second longitudinal vein and vein separating submarginal cells as in *Crocidium*, with the discal cross vein also beyond middle of discoidal cell, with the squamae roundly lobate; halteres with the knobs markedly elongate longitudinally, much more so than in *Crocidium*. *Legs* markedly elongate and slender, without any spines on femora, with very sparse pubescence, but with fairly dense scaling, with the spicules on tibiae not strongly developed, but with one long, more strongly developed, apical spur below on middle tibiae in both sexes; claws well developed and curved downwards apically and the pulvilli long in both sexes. *Hypopygium* of known ♂ (text-fig. 246) very much like those of *Crocidium*; the basal parts similarly shaped; beaked apical joints flattened dorso-ventrally and bifid apically, the outer apical part being produced spine-like, forming a bifid process with beak (*see* middle figure); aedeagus as in *Crocidium* and without a ventral process; lateral ramus on each side, joining each basal part to aedeagal part, also broadish and flange-like as in *Crocidium*; lateral struts slightly more rod-like than shown in figure.

This genus appears to be even more closely related to *Apatomyza* Wied. (p. 325, Aussereurop. Zweifl. Ins. i, 1828, Tab. IV, fig. 1, *a–d*; Becker, pp. 440 and 487, Ann. Mus. Zool. Acad. Imp. St. Petersb.,

vol. xviii, figs. 31 and 32, 1912), a genus which is only known to me through short and vague descriptions. From *Apatomyza* it appears to differ in having very much shorter first antennal joints, shorter apical joint of palps, more elongate abdomen and unspotted wings. There is, however, a probability that *Adelogenys* may prove to be synonymous with *Apatomyza* Wied. It also appears to be related to *Semiramis* Beck. (p. 485, loc. cit.) described from Persia. According to the brief description and figures of Becker, *Semiramis* differs from this genus in having longer and more slender palps and in having the alula of wings more developed.

The genotype is *A. culicoides* n. sp.

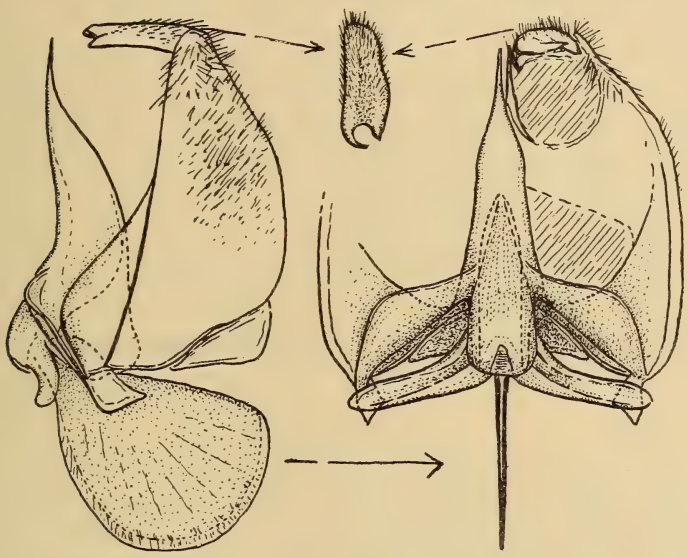
The three known species may be separated by the following key:—

1. (2) Small species, about 2½–3½ mm. long, with a wing-length of about 3–4 mm., having a mosquito-like superficial appearance; wings only very feebly tinged, very slightly greyish brown or yellowish brown, with the alula more reduced, vestigial and narrow; proboscis very much shorter, about 1 mm. long; apical joint of palps relatively longer, clavate apically; halteres with the knobs very pale, whitish and conspicuous; antennal joint 3 very much broadened in basal third and then more rapidly narrowed apically, more so along lower edge, and antennal joint 2 black; fine scaling on occiput, thorax and scutellum distinctly more silvery or with more silvery gleams in both sexes ♂ ♀ *culicoides* n. sp. (p. 814).
2. (1) Slightly larger or much larger species, about 5–7⅓ mm. long, with a wing-length of about 6–8½ mm., more resembling Empids; wings distinctly tinged or infuscated darker brownish, with the alula slightly less reduced and broader; proboscis very much longer, about 3–4 mm. long; apical joint of palps relatively shorter, ovoid or ovate; halteres with the knobs darker, yellowish brown or brownish; antennal joint 3 comparatively less broadened in basal half, the apical half at least slender and both antennal joints 1 and 2 yellowish; fine scaling on occiput, thorax and scutellum distinctly gleaming more brassy yellowish or golden . 3.
3. (4) Larger species, about 7⅓ mm. long, with a wing-length of about 8½ mm.; greater part of proboscis, face, metapleural part, almost entire coxae, the entire scutellum, the much broader hind margins of abdomen and the entire femora and tibiae yellowish; antennal joint 1 thicker and stouter; proboscis slightly shorter and stouter, about 3 mm. long ♀ *namaquensis* n. sp. (p. 816).
4. (3) Smaller and more slender species, about 5 mm. long and with shorter wings; greater part of proboscis, the face, entire pleurae and metapleurae, greater part of coxae and scutellum almost entirely, black, the hind margins of abdomen more narrowly yellowish and the femora predominantly dark; antennal joint 1 distinctly more slender; proboscis slightly longer and more slender, about 4 mm. long ♀ *braunsii* n. sp. (p. 817).

16 ♂♂ 12 ♀♀ *A. culicoides* n. sp.

Body black; antennal joint 1, face, buccal rims, basal joints of palps, proboscis above, humeral angle and down across anterior thoracic spiracle to above front coxae, around base of wing, the post-alar edge-like calli, the sides and apex of scutellum, metapleural infusions to a variable extent, the posterior edge of metapleurae, the broadish hind margins of all the tergites and the hind margins of sternites yellowish, ochreous yellowish to pale yellowish brown, with the entire scutellum and basal part of abdomen above in some specimens predominantly ochreous yellowish or yellowish, with the hypopygium in ♂♂ and apical part of abdomen in ♀♀ also almost entirely or predominantly yellowish; frons and face in ♂♂ very pale and almost whitish or ivory whitish; legs with the greater basal parts of coxae blackish or very deep blackish brown, their apical parts and the trochanters more, or entirely, yellowish, with the femora tending to be dark, more brownish to even blackish, their apical parts becoming paler, yellowish, with the hind ones sometimes more yellowish than brownish, the tibiae predominantly or entirely yellowish, their apices sometimes slightly darkened, especially on the hind ones, with the bases of the tarsi also yellowish, the hind ones usually predominantly very dark, with the spicules and apical spurs on tibiae black, only the longer apical spur below on middle tibiae yellowish; pubescence very sparse and short, only that on occiput, sides of thorax in front, that towards base of thorax, on scutellum and that on abdomen more evident, especially in ♂♂, but with the fine, depressed, hair-like scaling on body above denser and more conspicuous in both sexes, with the erect pubescence predominantly whitish above and below in ♂♂, showing sericeous or silvery gleams in certain lights, that on abdomen in ♂♂ denser, becoming even more conspicuous towards apex, with the erect pubescence in ♀♀ on occiput, thorax, scutellum and abdomen above slightly more yellowish, showing more sericeous yellowish gleams in certain lights, that on thorax even more golden in certain lights, that on coxae, head below and venter more silvery whitish as in ♂♂, with the fine scaling predominantly or entirely silvery whitish above, below, and on coxae and legs in some ♂♂, that on frons in ♀♀ dense and gleaming silvery, that on occiput brassy in some ♂♂, more golden in ♀♀, that on thorax predominantly silvery whitish but with an admixture of more brassy or golden scales, especially along two central stripes or on middle and on disc medially, that on

abdomen in ♀♀ dense and gleaming pale brassy yellowish or pale sericeous yellowish, appearing more silvery whitish above towards apex, that on body below whitish as in ♂♂, with the scaling on legs sericeous or silvery whitish; wings relatively long, very feebly, but distinctly, tinged greyish yellowish, a feeble brownish tinge being perceptible in certain lights, iridescent, with the veins brownish to dark brownish, the basal parts of costal and first longitudinal veins



Text-fig. 246.—Side view and greater part of ventral view of hypopygium, and dorsal view of beaked apical joint of ♂ *Adelogenys culicoides* n. gen. and n. sp.

and base of wings pale yellowish brown, with the alula much reduced and very narrow, with the discal cross vein a little beyond middle of discoidal cell, with the squamae small, subopaquely whitish and with sparse, fine, whitish fringe; halteres dirty yellowish, their bases brownish, with the knobs remarkably large, conspicuous, elongate, and almost white. *Head* with the eyes above in ♂♂ separated, about as broad as front part of prominent ocellar tubercle, the inner margins gradually diverging anteriorly, with the facets all of equal size; interocular space in ♀♀ on vertex about 3 times as broad as tubercle, the inner margins of eyes tending to converge slightly down rest of frons; frons distinctly medially depressed in front just behind antennae in both sexes; face short and not very prominent; antennae with joint 1 short, only about 2, or very slightly more,

times as long as 2, with very sparse and fine hairs, with 3 quite, or even a little more than, 1½ times as long as 1 and 2 combined, broadest in basal third, more rapidly narrowed along lower edge, the lower basal part thus showing a slight dilatation and the dorsum slightly curved, with the terminal elements distinctly visible as a short basal joint and a longer apical one, the latter bearing a very fine, hair-like style apically; proboscis about 1 mm. long, relatively stoutish, with sparse, hair-like spinules on labella; palps conspicuous, projecting for nearly or quite half the length of the proboscis, slender, the basal joint elongate and very much longer than apical one, the apical one becoming gradually thickened or clavate apically. *Thorax* from side markedly arched or convex, humped. *Legs* slender and elongate. *Hypopygium* of ♂ (text-fig. 246) and as described for genus.

Types in the South African Museum.

Length of body: about 2½–3½ mm.

Length of wing; about 3–4 mm.

Locality.—Nieuwveld Karoo: Victoria West Distr.; Melton Wold (Mus. Staff, Oct. 1935).

Superficially these insects resemble Culicids when resting on the flowers of Mesembryanthemums.

1 ♀ *A. namaquensis* n. sp.

Body black; anterior part of frons, the entire face, buccal rims, the greater part of proboscis and basal joints of palps, antennal joints 1 and 2, the humeral sclerite and sclerites above front coxae, the posterior calli, the scutellum, the greater part of the metapleurae, abdominal segment 1, broadish hind margins of the other abdominal segments, broader on sides of segments 2 and 3, the hind margins of venter, the coxae to a great extent, the entire femora and tibiae and bases of tarsi yellowish; pubescence with the short erect or suberect hairs on occiput, sides and base of thorax and scutellum yellowish to golden yellowish, those on disc of thorax almost blackish and very short, those on head below and the thorax below white, those on abdomen above sericeous yellowish, more whitish on sides and whitish on venter, with the depressed hair-like scaling golden on frons and thorax above, more sericeous yellowish on sides of thorax, golden and denser on scutellum, dense on abdomen, golden discally, silvery whitish below on venter, with the sparse scaling on pleurae silvery whitish, the scaling on femora whitish, becoming slightly dull yellowish on the upper surfaces; wings infuscated, entirely subopaquely yellowish brown, the veins yellowish

brown, becoming darker brownish in apical half, with the costal vein in apical part (along so-called stigma) black, with the third longitudinal vein slightly bending downwards at discal cross vein, which is much beyond middle of discoidal cell, with the second submarginal cell as in species of *Crocidium*, with the apically acute anal cell provided with a very short stalk, with the squamae subopaquely yellowish, having a silvery white fringe; halteres yellowish, with very pale yellowish brownish knobs, the outer and inner carinate edges of which are reddish brown. *Head* with the interocular space on vertex a little less than 3 times as broad as ocellar tubercle; frons depressed in front half and with a slight raised subtubercular prominence on each side of antennae anteriorly; antennae with joint 1 a little more than 2 times as long as 2, with very fine and short hairs, with joint 3 directed outwards, a little more than $1\frac{1}{2}$ times as long as 1 and 2 combined, broadest just before middle (side view), then gradually narrowed basally and more rapidly towards apex, the apical part, however, rod-like and ending in the terminal joints, of which the first is smaller and shorter than the second, the latter ending in a style; proboscis about 3 mm. long; palps nearly 1 mm. long, the apical joints very short, broad and oval.

Length of body: about $7\frac{1}{3}$ mm.

Length of wing: about $8\frac{1}{2}$ mm.

Locality.—Namaqualand: Kamieskroon (Mus. Exp., Sept. 1930).

This species is easily recognised by its superficial resemblance to an Empid and by its yellowish brown infuscated wings. Superficially it also has a marked resemblance to *Pseudoamictus* (*Pseudempis*) *heteropterus*, from which it may readily be distinguished by the presence of 4 posterior cells on the wings and by the much shorter less hairy first antennal joints.

1 ♀ *A. braunsii* n. sp.

In the Transvaal Museum there is a ♀-specimen of a species which obviously belongs to this new genus *Adelogenys* in its body-characters. The wings, excepting only the basal part of the left one, are unfortunately missing. There is, however, no doubt whatever that it belongs to *Adelogenys*. It is also very near to *A. namaquensis*, from which it differs in being much smaller, with narrower body, only about 5 mm. long, with the body more predominantly black, the face, entire pleurae (excepting only the hind margin of metapleurae) and entire scutellum being black, with the ivory yellowish hind margins of

abdomen above and below distinctly narrower and less yellowish, not much broadened on sides of segments 1–3; legs with the coxae almost entirely black, the femora predominantly dark brownish, only the bases and apices yellowish with the tibiae and bases of tarsi yellowish, with the legs also more slender; pubescence as in *namaquensis*, the very short dark suberect hairs on disc of thorax apparently slightly denser, that on abdomen towards base slightly longer and more whitish; wings (judging from remaining basal half of left one in specimen) also yellowish brown and with yellowish veins. *Head* with the inner margins of eyes across buccal cavity slightly wider apart than across frons, the margins thus diverging very slightly from frons down the face, with antennal joint 1 very slender and also reddish, about, or nearly, 3 times as long as joint 2 (3 missing), with the proboscis more slender much darker, dark brownish and slightly longer, about 4 mm. long, with the palps brownish, shorter and even more slender, the apical joints, however, also dark and ovate.

Locality.—Little Karoo: Willowmore (Brauns, Sept. 1917).

Gen. *Apatomyza* Wied.

(P. 325, Aussereurop. Zwetfl. Ins. i, 1828, Tab. IV, fig. 1, *a–d*; Becker, pp. 440 and 487, Ann. Mus. Zool. Acad. Imp. St. Petersb., vol. xviii, figs. 31 and 32, 1912.)

This genus is not represented in the extensive collection of *Bombyliidae* before me. Apparently it is only represented by the unique genotype and species-type in the Copenhagen Museum and has never been taken or recorded since it was described by Wiedemann in 1828. According to Wiedemann and Becker, this genus is characterised by its superficial resemblance to a Therevid, very elongate first antennal joints, elongate third antennal joints ending in a distinct two-jointed terminal part bearing a style, somewhat conically prominent face, shortish proboscis, distinctly two-jointed palps, the apical joints of which are clavate, *Phthiria*-like wings, which are spotted and almost like those of species of *Crocidium*, and comparatively long legs, with shortish and sparse hairs. Becker also states that the type-specimen is a ♂ with comparatively broad interocular space, which is, however, narrower than an eye. The figure of the head from above (Tab. IV, fig. 1, *b*) given by Wiedemann, on the contrary, appears to be that of a ♀. Becker, however, states that the hypopygium is symmetrically constructed, thus supporting his contention that it is a ♂. Unless Becker has mistaken paired

terminal elements or plates at the apex of the abdomen in the ♀ for the partly fused and always symmetrical basal parts of the hypopygium, this genus is peculiar in this respect.

The solitary species on which the genus is based, *A. punctipennis* Wied. (p. 326, loc. cit., Tab. IV, figs. 1, *a–d*), is characterised by the leather brownish antennae, reddish yellow face and vertex, yellowish-haired thorax, rusty brownish pleurae which are blackish in the middle, ferruginous scutellum, abdomen and legs and yellowish wings, which are feebly spotted on the cross veins.

Locality.—S. Africa: Cape.

Subfam. *Heterotropinae.*

Apparently this subfamily is represented only by a single known genus *Heterotropus* Lw., which is represented by numerous species in the Palaearctic Region. The distinguishing characters of this subfamily are essentially those given under the genus *Heterotropus* (*see* below). From *Crocidium* Lw. and *Adelogenys* n. gen., the genus *Heterotropus* differs in having much shorter first antennal joints, a conical face marked off from upper parts of the genae and base of antennae by a transverse depression or groove, in having much sparser and shorter pubescence and no dense scaling on body, a shorter and more basally acute second submarginal cell and a distinct downward bend in third longitudinal vein, in having much feebler spicules on tibiae and no long apical spur below on middle tibiae. The *Heterotropinae* are in fact very near the *Crocidium*-group, and also show relationships with the *Phthiriinae.*

Gen. *Heterotropus* Lw.

(P. 181, Beschreib. Europ. Dipt., iii, 1873; Engel, p. 156, Die Fliegen. d. Pal. Reg. Lief., 76 (Bombyliidae), 1933.)

The ♀-type of *Heterotropus munroi* Bezz., in the Transvaal Museum, and a ♀-specimen in the collections of the South African Museum can only be referred to *Heterotropus.* The characters of this genus, as based on these ♀♀, are: *Body* not humped but rather depressed, especially the abdomen, with the integument almost bare, the pleurae bare, the head above, thorax above and especially the abdomen above and below with only very short, scarcely visible, sparse hairs and with extensive yellow markings on the body of ♀♀ at least. *Head* (text-fig. 247) with the occiput hollowed out behind and below

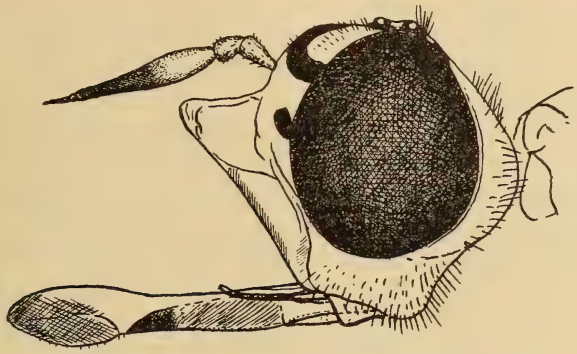
ocellar tubercle; frons convex and continuously convex with vertex, the interocular space on vertex broad in ♀♀; antennae with joint 1 short, but longer than 2, with joint 3 elongate, tapering apically and with its terminal joints developed (with at least 2 joints visible); face well developed, the upper part, just above buccal cavity, projecting horizontally, conically prominent, distinctly marked off from bases of antennae and from upper parts of genae by a transverse, groove-like depression which is continuous with the furrows separating genae from buccal cavity; genae well developed and broadish; proboscis relatively short and stout; palps slender and two-jointed, the apical joint, however, scarcely separately visible. *Thorax* slightly narrower than head; scutellum transverse and broader than long; wings hyaline, not spotted, with 4 posterior cells, the second submarginal cell short, acute basally, with the third longitudinal vein bending towards discoidal cell at level of the discal cross vein and joining the second longitudinal vein at a point a little before level of base of discoidal cell, the very short discal cross vein itself beyond middle of discoidal cell, with the anal cell acute apically and provided with a short stalk as in the *Crocidium*-group and in the *Phthiriinae*, with the alula lobe-like, not very broad, but its posterior margin arcuately rounded. *Legs* comparatively stout, shortish, the femora almost bare, without scaling and with only very short, scarcely visible, sparse hairs; tibiae more hairy, the spicules short, not strongly developed, even the apical crown of spines short and feeble; claws and pulvilli well developed. The ♂ is unknown to me but, according to both Loew (loc. cit.) and Paramonow (p. 127, Trav. Mus. Zool. Kiev, No. 6, 1929) the ♂♂ are much like the ♀♀, differing only in having less extensive yellow on the body, slightly denser and more conspicuous pubescence and contiguous or very narrowly separated eyes.

H. munroi Bezz.

(P. 246, Bull. Soc. Ent. d'Egypte, 1925 (1926); Paramonow, p. 143, Trav. Mus. Zool. Kiev, No. 6, 1929.)

This is the only species of *Heterotropus* recorded from Southern Africa, and as the original description is in French and the Egyptian journal not well known in South Africa, I am appending a description of the ♀♀ before me: Face, genae, head below and body ivory yellowish, the buccal cavity being more whitish; head above occiput, sides of thorax and a longitudinal band on each side towards middle

of thorax, broader towards base, the scutellum, broad transverse apical bands across abdomen above and the entire sides of abdomen also pale yellow; a spot on each side lower down on occiput, a central spot on upper part on occiput, a small mark behind each eye nearer vertex, a transverse spot on each side of frons anteriorly, a central mark on frons continued posteriorly as a ⅄-shaped mark (the arms of which embrace and include each lateral ocellus), a small spot on each side along margins of eyes at level of base of face, a broad central band (narrowed posteriorly) on disc of thorax, a longitudinal band



Text-fig. 247.—Head of ♀ *Heterotropus munroi* Bezz.

on each side on disc (broadened anteriorly), a small spot on each side near humeral angle, an oval spot on each side just above wing-bases, a small ovate spot at about middle along anterior margin of mesopleuron on each side, the broad basal parts of abdominal segments above and a faint narrow longitudinal line on each side of venter, black; antennae yellowish, but with the upper parts of joints 1 and 2 and greater part of 3 brownish; proboscis predominantly yellowish, somewhat darkened apically, but blackened below just before base of labella, with the palps pallid; legs yellowish, the hairs and spicules also pale yellowish, a small spot on trochanters, the extreme apices of hind tibiae, the apices of first tarsal joints, the apical halves or more of second joints and the rest of the tarsal joints black or blackish brown; wings vitreous hyaline, with a very faint yellowish tinge in certain lights, iridescent, with the veins very pale yellowish, with the discal cross vein much shorter than the other cross veins, with the vein separating third posterior and discoidal cells almost straight, with the squamae pellucid; halteres yellowish, with pale yellowish knobs. *Head* (text-fig. 247) with the interocular space on vertex a little more than 2 times as broad as ocellar tubercle; frons

slightly wrinkled, the inner margins of eyes only gradually diverging apically, with very sparse, short and pale hairs on occiput and vertex; face and genae almost bare, with only very minute and sparse hairs discernible in certain lights; antennae with joint 1 a little longer than 2; proboscis about 1½ mm. long, faintly striate in basal part. *Thorax* above with fine almost bloom-like pubescence, especially on black marks, and with fine, short, sparse, erect hairs, with more distinct and longer hairs on propleural parts just below humeral angles. *Abdomen* sometimes somewhat flattened, more or less shining above, with only very sparse and short whitish hairs being visible, especially on sides and sides of segment 1.

Length of body: about 5 mm.

Length of wing: about 4 mm.

Locality.—Central Karoo: Murraysburg Distr. (Thorne, Mar. 1931); also Hopetown (Type).

Superficially these insects resemble species of *Phthiria*, such as *P. laeta* and *crocogramma*. The structural differences and the different pale yellow markings are, however, obvious.

Subfam. *Phthiriinae.*

The genera *Crocidium* Lw., *Phthiria* Meig., *Apatomyza* Wied., *Geron* Meig., *Pseudoamictus* Big., *Apolysis* Lw. and *Oligodranes* Lw. have all been placed in the true *Phthiriines* by Loew, Becker and Bezzi. In view of the fact that the genera of this ill-defined subfamily differ markedly from each other in important characters it is necessary to remove the more aberrant genera to obtain more uniformity in the group. The preceding Ethiopian genera, namely *Crocidium* Lw., *Adelogenys* n. gen. and *Apatomyza* Wied., possessing certain common characters, I have referred to a special group of the *Bombyliinae*. The genera *Geron* Meig., *Amictogeron* n. gen., and *Pseudoamictus* Big. have been transferred to a new subfamily *Geroninae* (*see* farther down). The remaining genera *Phthiria* Meig., *Apolysis* Lw. and the genus *Oligodranes* Lw., though differing in wing-characters, are remarkably uniform in certain other generic characters, and appear to constitute a well-defined group which I am referring to the true *Phthiriinae*. The distinctive characters of the *Phthiriinae* are:—*Body* with the thorax more or less humped in appearance, the pleural parts being high; pubescence on the whole sparse, often very sparse and short, composed of short, erect hairs, the greater part of body and pleurae often bare, with scaling very

poorly developed and more often wanting. *Head* with a distinct transverse frontal depression towards the apex, the apical part in the region of the antennae more or less prominent, raised, giving it a tumid appearance; face just in front of antennae very short, practically non-existent, the buccal cavity almost reaching antennae; buccal cavity usually very broad and furrow between it and genae or inner margins of eyes very shallow or scarcely indicated, the genae often very narrow; palps usually with the apical joint not separately visible, and when so not short but elongate; antennae with joint 1 very short, never more than about $1\frac{1}{2}$ times as long as 2, with 3 always modified, broadish from side and ending apically either in an upper and lower spine-like process, a subapical process or an upwardly directed apical process, with the terminal elements, usually represented as a slender style, never terminal to joint 3 but situated in a slight depression or hollow between the apical processes or above just in front of the apical process (cf. text-figs. 248 *a*, 253 *a*, 257 *a* and *b*, and 263 *a*). *Wings* with either 4 or 3 posterior cells, with 2 submarginal cells, with or without a discoidal cell, always with the anal cell apically acute and provided with a stalk, with the axillary lobe very broad and triangularly lobate, with the alula well developed, with the second longitudinal vein and vein between the submarginal cells straight to their ends, with the apical cross vein of discoidal cell, when present in forms with 3 posterior cells, straight and not markedly S-curved as in the *Geroninae* and in all genera without a basal comb to wings. *Abdomen* without a lobe-like process ventrally on segment 8 in ♀♀ and with the last sternite in ♂♂ of some genera scoop-like and conically produced. *Legs* without any spines on femora below, with the spicules on tibiae very poorly developed, scarcely evident, almost absent and with the apical crown of spurs short or very poorly developed and without one long spur below on middle tibiae and without a few longer spines at base of hind tarsal joints below as in the *Geroninae*, with distinct longish bristly hairs apically on last tarsal joint, with the pulvilli broader and more foliate than in *Crocidium*-group, and with the spine-like empodium also longer. *Hypopygium* of ♂♂ with the inner apical part of basal parts more often elongate, much produced and spinulated apically (cf. text-figs. 248–256 and 258–263).

Gen. *Phthiria* Meig.

(Illiger's Mag. Ins., ii, 268, 44, 1803; Becker, pp. 440 and 484, Ann. Mus. Zool. Acad. Imp. St Petersb., vol. xvii, 1912; Bezzi, p. 96, Ann. S. Afr. Mus., vol. xviii, 1921; Engel, p. 139, Die Fliegen. d. Pal. Reg. Lief. 69 (Bombyliidae), 1933.)

Not having examined European forms of this genus, it is difficult to state whether the Ethiopian representatives strictly conform to the Palaearctic genus as defined by Meigen and the other authors. According to references and abbreviated descriptions of this genus in the literature at my disposal, the species, dealt with in this paper, can at present only be referred to *Phthiria*. No author, however, appears to have described this genus fully enough so as to preclude confusion with other related *Phthiriinae*. Generic characters common to the South African species may be shortly summarised as follows:—*Body* less humped than in *Crocidium* and *Adelogenys*, often almost bare and sometimes with extensive yellow markings, especially in ♀♀, sometimes with quite dense and longish, even shaggy pubescence, usually more developed in ♂♂. *Head* with the eyes in ♂♂ in contact above, broadly separated in ♀♀, the eyes in ♂♂ sometimes distinctly larger than in ♀♀; frons more or less convex and sometimes very convex in ♂♂, especially apically, sometimes convex beyond transverse depression in ♀♀; frontal part of head sometimes markedly and conically produced in front of anterior level of eyes to antennal insertions, the frontal part thus almost spout-like; face above buccal cavity very short and practically non-existent; genae usually very well developed and broad and the edges of buccal cavity sharp and prominent; antennae with joint 1 very short or at least not longer than about $1\frac{1}{2}$ times as long as 2, sometimes scarcely as long as 2, with 3 usually laterally compressed, more or less spindle-shaped or elliptical, broadest at about, or just before, middle and ending apically in an upper apical or subapical, spine-like process, sometimes comparatively long and also in a lower apical process or prominence, which two processes together sometimes form a bifid process, with the terminal or stylar element not distinctly visible or sometimes visible as a bristle-like style just above the lower apical process of joint 3 on the inner side and with fine hairs present on joint 3 above in some species (cf. text-figs. 248 and 253, *a* for shape of joints, etc.); proboscis either long or shortish and sometimes with distinct and even dense and longish hairs on labral part; palps slender, usually conspicuous, separate joints not being visible. *Wings* almost similar to those of *Crocidium* and also with 4 posterior cells

and more or less with straight veins in upper apical part, the first posterior cell open and the anal cell closed and acute apically and the alula and axillary cells well developed, without any spots or infusions on cross veins in the South African species. *Legs* with the spicules on tibiae usually feebly developed, especially on front ones and sometimes only evident towards apices of the others; middle tibiae without a conspicuous and long, apical spur below as in *Crocidium*. *Hypopygium* of ♂♂ (text-figs. 248–256) with the inner apical part of basal parts in neck region usually prominent or produced into a process, which is broad from side, provided at apex towards the outer side and more dorsally with a crest of shortish spines, with the dorsum of basal parts often provided with long, bristly hairs; beaked apical joints usually slightly curved (*see* figures), hollowed out below, with comparatively few and sparse, or without any, hairs above, but sometimes with a few, usually two, longer, stouter and more spine-like, bristly hairs nearer apex on inner side; aedeagus usually straight or curved upwards apically, without a ventral process, joined on to basal parts on each side by a broadish, flange-like ramus or merely by a strap-like ramus which is under the lateral struts (cf. text-figs.), the aedeagus often produced basally below middle part into a conspicuous process on each side; lateral struts directed outwards and upwards in most of the species.

This genus is very rich in species in the Palaearctic Region and there is no doubt that the South African subregion also has many still unrecorded forms. Most species of *Phthiria* are probably associated with flowers and, when more attention is given to the very numerous insects dependent or associated with our flowering plants, there is no doubt that the list of species given in this paper will be considerable enlarged.

Key to the South African species.

♂♂

1. (16) Proboscis without any hair or dense hairs on labral part; head with the apical frontal part beyond anterior level of eyes to antennal insertions scarcely and not markedly or strikingly conically produced and narrowed apically, the front part of head not so markedly spout-like, with the frons, even if convex, not markedly boss-like; abdomen entirely black or with comparatively narrow yellowish hind margins; hypopygium (text-figs. 248–255) . . . . . 2.
2. (11) Antennae with joint 3 ending apically in an upper and a lower spine-like process, both more or less equally prominent and forming a more symmetrical bifid process, the lower process at least also well developed,

with joint 1 usually very short and transverse, scarcely as long as 2; frons narrower in front behind antennae and less markedly tumid; wings less markedly subopaquely milky whitish and the veins usually darker, more brownish or even dark blackish brown and if paler, wings at least are not milky whitish; pubescence on the whole sparser and shorter, that on legs almost absent, shorter or very poorly developed; last tarsal joint with shorter and less conspicuous bristly hairs apically and spine-like empodium shorter; hypopygium (text-figs. 248–252) with the inner apical part of basal parts produced into a longer process, with the aedeagus never or much less distinctly curved apically . 3.

3. (6) Legs entirely or predominantly yellowish or the tibiae are yellowish; venter with the narrow hind margins yellowish or pallid and with the last sternite mainly yellowish . . . . . 4.

4. (5) Legs with the femora, tibiae and bases of tarsi yellowish; venter with slightly broader and more conspicuous yellowish hind margins; proboscis slightly shorter and stouter, about 1½ mm. long; pubescence shorter and less dense; wings with the veins more brownish or yellowish brown; hypopygium (text-fig. 248, *b*) with a longer aedeagus

laeta var. *xerophila* n. (and *laeta* s. str.) (p. 832).

5. (4) Legs with only extreme apices of femora, the entire middle and hind tibiae and upper surfaces of front tibiae yellowish; venter with narrower and less conspicuous hind margins; proboscis distinctly longer and more slender, about 3 mm. long; pubescence on the whole denser and slightly longer; wings with the veins darker and more blackish brown; hypopygium (text-fig. 250) with a shorter aedeagus

fallax n. sp. (p. 836).

6. (3) Legs entirely black or dark, only the knees sometimes narrowly yellowish or pallid; venter entirely black or with scarcely perceptible pallid hind margins and with the last sternite black or dark . . . . 7.

7. (10) Wings vitreous or glassy hyaline, with the discal cross vein distinctly or much beyond middle of discoidal cell; knees narrowly pallid or yellowish; hypopygium (text-figs. 249 and 251) with the two stouter spine-like bristles on outer or inner side near apex of beaked apical joints shorter and less conspicuous and with the inner apical process of basal parts broader from side . . . . . 8.

8. (9) Antennae with joint 3 longer, with distinct shortish, bristly hairs above, with the upper apical spine-like process a little farther back, the lower one more terminal and more prominent or stouter, the two together forming a distinctly less symmetrical bifid process; proboscis longer, about 3–3½ mm. long; pubescence with that on sides of face and that towards apices of femora, especially middle and hind ones, dark or even blackish; wings more strongly developed, broader and comparatively longer; slightly larger species, about 5–5½ mm. long, with a wing-length of about 5–6 mm.; hypopygium (text-fig. 249) without a distinct basally projecting lobe on each side where ramus joins aedeagus, with the basal strut shorter and narrower . . . *crocogramma* n. sp. (p. 833).

9. (8) Antennae with joint 3 shorter, without distinct hairs above, with the upper apical spine-like process more apical in position, about as strongly developed as lower one and forming with the latter a more distinctly

symmetrical bifid process; proboscis shorter, only about 1⅔–2 mm. long; pubescence entirely sericeous whitish even on face, genae and femora; wings less strongly developed, narrower and comparatively shorter; smaller species, about 3½–4 mm. long and with a wing-length of about 4 mm.; hypopygium (text-fig. 251) with a distinct basally projecting lobe on each side where ramus joins aedeagus, with the basal strut broader and longer . . . . *flavigenualis* n. sp. (p. 837).
(In here also *pulla* Bezz.)

10. (7) Wings distinctly, though very faintly, dusky or cinereous greyish, with a feeble brownish or yellowish tint in certain lights, with the veins paler and with the discal cross vein tending to be at or only a little beyond middle of discoidal cell; legs deep sienna brownish to blackish brown, the knees not pallid or paler; hypopygium (text-fig. 252) with the two spine-like bristles near apex of beaked apical joints very conspicuous and stout, and with the inner apical process of basal parts distinctly more slender . . . . . *pubescens* Bezz. (in lit.) (p. 839).
11. (2) Antennae with joint 3 ending apically in a distinctly more powerful, prominent and longer, upper, spine-like process, sometimes very conspicuous, the lower process much feebler, these two processes together not forming a very distinct symmetrical or bifid process, with joint 1 usually tending to be longer, as long as, or even longer than, joint 2; frons distinctly broader and tending to be more tumidly prominent just behind antennae; wings distinctly more conspicuously or evidently subopaquely milky whitish, and the veins usually paler and more yellowish; pubescence on the whole denser and longer, more shaggy, that on femora longer; last tarsal joint with longer and more conspicuous bristly hairs and spine-like empodium more prominent; hypopygium (text-figs. 253–255) with the inner apical part of basal parts scarcely produced, or if produced the process is distinctly shorter, with the aedeagus often curved upwards apically . . . . . 12.
12. (13) Antennae with joint 1 distinctly longer, quite 1½ times as long as 2, with distinctly longer hairs above, with 3 more distinctly spindle-shaped (text-fig. 253, *a*), broader, broadest at about middle, more distinctly humped in appearance, with some scattered, short, bristly hairs above, with the upper, apical, spine-like process long and well developed, conspicuous, the lower process not prominent; pubescence on body denser, more shaggy and longer; tumid front part of frons tending to be more or less shining black; hypopygium (text-fig. 253, *b*) with the beaked apical joints more flattened, broader and blunter apically, with the inner apical part of basal parts not produced into a conspicuous process . . . . . *lanigera* Bezz. (p. 840).
13. (12) Antennae with joint 1 distinctly shorter, less than 1½ times and subequal to joint 2, with much shorter hairs above, with joint 3 narrower, less humped above and, if spindle-shaped, with the upper apical process distinctly shorter, less strongly developed, with the lower apical process more prominent, the two together forming a more distinct bifid process, without or with scarcely any bristly hairs above; pubescence on body distinctly less dense and shaggy; tumid front part of frons dull; hypopygium (text-figs. 254 and 255) with the beaked apical joints more

slender and more acute apically and with the inner apical part of basal parts produced into a conspicuous process, the apex of which has a distinct crest of spines . . . . . 14.

14. (15) Antennal joints 3 more elongate, longer than 2 times as long as 1 and 2 combined, less obviously spindle-shaped, the upper apical process longer, more acute apically, and slightly more curved, the lower apical process scarcely prominent; face and genae with entirely white hair; proboscis slightly shorter, only about 1½ mm. long; wings with the vein between anal and fourth posterior cells and the one between anal and axillary cells not entirely straight and with the apical stalk of anal cell shorter than apical cross vein of discoidal cell; venter with very narrow yellowish hind margins; hypopygium (text-fig. 254) . *simmondsii* n. sp. (p. 842).

15. (14) Antennal joints 3 shorter and broader, more spindle-shaped, with the upper apical process shorter, stouter, blunter and not curved, the lower apical part more prominent and process-like, forming a more distinct bifid process with the upper one; face and genae with entirely black hair; proboscis longer, about 2–2½ mm. long; wings with the vein separating anal and fourth posterior cells and the one between anal and axillary cells markedly straight and with the apical stalk of anal cell longer, quite as long as apical cross vein of discoidal cell; venter entirely black; hypopygium (text-fig. 255) . . *nigribarba* n. sp. (p. 843).

16. (1) Proboscis with fairly dense and longish hair on labral part; head with the apical frontal part beyond anterior level of eyes to antennal insertions markedly and strikingly conically produced and narrowed apically, the front part of head markedly spout-like, with the frons markedly convex and boss-like; abdomen with broad and conspicuous yellowish hind margins; hypopygium (text-fig. 256) . *pilirostris* n. sp. (p. 844).

♀♀

1. (14) Proboscis without any hair or dense hairs on labral part; head with the apical frontal part beyond anterior level of eyes to antennal insertions scarcely and not markedly or strikingly conically produced and narrowed apically, the front part of head and frons not so markedly spout-like, with the frons also shorter and distinctly narrower; body not predominantly or almost entirely yellowish above and below, the thorax above and basal halves of the tergites at least black or entire body above and even to a certain extent below may be black . . . . . 2.

2. (13) Antennae with joint 3 ending apically in an upper and a lower spine-like process, both more or less equally prominent, or the lower one tending to be more prominent, both together forming a more symmetrical bifid process, with joint 1 very short and transverse, shorter or scarcely as long as 2; frons in front slightly less convex or tumidly prominent; wings vitreous or glassy hyaline, slightly greyish hyaline or dusky, but not conspicuously or very markedly subopaquely milky whitish, with the veins usually darker; pubescence much sparser, very sparse or almost wanting, that on legs short, sparse or very poorly developed; last tarsal joint with shorter or less conspicuous bristly hairs apically and spine-like empodium shorter . . . . . 3.

3. (6) Legs entirely or predominantly yellowish or the tibiae are predominantly

yellowish; wings more vitreous or glassy hyaline without or with only a very feeble milky whitish tint in certain lights; body with the yellow more extensively developed, the coxae, head below, prosternal part and the pleural part below wings and the hind margins of venter entirely, predominantly or more extensively yellow; antennal joint 3 (text-fig. 248, *a*) with the upper apical spine-like process nearer apex, thus forming a more symmetrical bifid process together with the lower apical one; scutellum on the whole broader, more transverse and less than half as long as broad . . . . . 4.

4. (5) Occiput or greater part of occiput and a conspicuous, broad, central band on head above, extending from occiput to base of antennae black; scutellum with the hind border or the sides conspicuously black and the base of the thorax above also entirely black; abdomen with the yellow hind margins slightly narrower and not conspicuously broadened on sides; pubescence tending to be sparser and paler sericeous yellowish or more often more whitish above on thorax . *laeta* Bezz. (p. 831).

5. (4) Greater upper part of occiput and the head above entirely yellow or yellowish; scutellum entirely or more extensively yellow and even the basal part of thorax above with much yellow; abdomen with the yellow hind margins distinctly much broader, much broader on sides, and sometimes with the entire abdomen predominantly yellowish and even sides of thorax more broadly yellowish; pubescence tending to be denser, more conspicuous and more distinctly sericeous yellowish to golden yellowish above on thorax . *laeta* var. *xerophila* n. (p. 831).

6. (3) Legs entirely very dark blackish brown or black, only the knees being narrowly pallid or yellowish; wings sometimes with a more distinct, though feeble, milky whitish tint or even cinereous or yellowish tint; body entirely black or with the yellow less extensively developed, the coxae, head below, prosternal parts and pleural part just below wings, predominantly black or with much black, and the yellowish hind margins of venter very much narrower, greater part of venter being more blackish; antennal joint 3 with the upper apical process or spine farther back and more subapical, the apical bifid process thus less symmetrical; scutellum apparently narrower, more tumid, less transverse and quite half as long as broad . . . . . 7.

7. (12) Body with extensive yellow markings on head, thorax, scutellum, pleurae and on abdomen and knees narrowly yellowish; wings glassy or vitreous hyaline or with a very feeble subopaque milky whitish tint but not dusky or faintly yellowish; proboscis slightly longer, about 2–3½ mm. long; head below, genal region and scutellum not tending to be conspicuously smooth and shining . . . . . 8.

8. (11) Head with some yellow behind eye-margins on vertex or upper part of occiput, with the yellow on pleurae more extensive, the mesopleuron with more yellow and sternopleuron practically half yellow, with practically entire upper surface of scutellum yellow and the yellow hind margins of tergites and sternites distinctly broader and more conspicuous; wings more vitreous or glassy hyaline, much broader and longer; interocular space on vertex slightly broader about or at least 2 times as broad as ocellar tubercle; antennal joint 3 with the upper

apical process slightly farther back and the bifid process formed with lower process less symmetrical; proboscis longer, about 3–3½ mm. and stouter; slightly larger forms, about 5–5½ mm. long and with a wing-length of 5–6 mm. . . . . 9.

9. (10) Head above with a broad, central, black band extending from occiput to bases of antennae; sides of thorax in front of wings less broadly yellowish, the disc of thorax entirely black, the scutellum less extensively yellow and hind margins of abdomen above and below less broadly yellowish; wings clearer hyaline . . *crocogramma* n. sp. (p. 833).

10. (9) Entire frons yellow; sides of thorax in front of wings more broadly yellowish, the base of thorax above also yellow, the scutellum entirely and more extensively yellow and the hind margins of the tergites more conspicuously and broadly yellowish; wings with a more distinct subopaque milky whitish tint in certain lights *crocogramma* n. sp. (var.) (p. 835).

11. (8) Head without any yellow on each side of occiput behind eyes, with the yellow on pleurae more reduced, the mesopleuron and greater part of sternopleuron black, with only the discal part of scutellum yellowish, the sides more broadly black and the yellowish hind margins of tergites and sternites very much narrower; wings with a more conspicuous subopaque milky whitish tint, distinctly narrower and shorter; interocular space slightly narrower and even less than 2 times as broad as tubercle; antennal joint 3 with the upper apical process slightly less subapical in position, and the bifid process formed with lower process more symmetrical; proboscis shorter, more slender, only about 2 mm. long; smaller form, only about 3 mm. long, with a wing-length of about 4 mm. . . . . *cognata* n. sp. (p. 835).

12. (7) Body entirely black, without any yellow markings, the legs entirely very dark blackish brown or black and the knees not paler; wings distinctly, though very faintly, tinged greyish yellow or cinereous yellow, with a faint brownish tint in certain lights; proboscis on the whole shorter, only about or scarcely 2 mm. long; head below genal parts and scuttelum more or less brilliantly shining and smooth *pubescens* Bezz. (in lit.) (p. 839).

13. (2) Antennae with joint 3 (text-fig. 253, *a*) ending apically in a distinctly more powerful, prominent and longer, upper spine, usually very conspicuous, the lower apical process feebler, these two processes together not forming a very distinct symmetrical or bifid process, with 3 also more distinctly humped above, with joint 1 usually longer and even at least 1½ times as long as 2; frons in front distinctly more convex or tumidly prominent; wings distinctly more conspicuously subopaquely milky whitish, with the veins usually much paler and more yellowish; pubescence distinctly very much denser, shaggy and conspicuous, that on sides of face sometimes blackish and that on legs longer and denser; last tarsal joint with longer and more conspicuous bristly hairs apically and with the spine-like empodium longer. (Head below and a longitudinal band on pleurae yellowish) . . *lanigera* Bezz. (p. 840).

14. (1) Proboscis with fairly dense, longish and conspicuous hair on labral part; head with the apical frontal part beyond anterior level of eyes to antennal

insertions markedly and strikingly conically produced and narrowed apically, the front part of head markedly spout-like, with the frons also distinctly longer and also broader; body predominantly and almost entirely yellow or yellowish above and below, even the thorax above only with 3 reddish brown or brownish lines and only the extreme bases of the tergites along midline above dark

pilirostris n. sp. (p. 844).

P. laeta Bezz.

(P. 96, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species of *Phthiria* is easily recognisable by the extensive yellow markings on the body in ♀♀, predominantly yellowish legs and poorly developed pubescence and almost bare body in ♀♀ at least. It can only be confused with *crocogramma* n. sp., from which, however, it may be readily distinguished by the characters given in the key. This species as well as the other similarly marked species are peculiar in that only the ♀♀ are so strikingly marked and that the ♀♀ superficially resemble certain Acalypterate *Diptera*, such as the *Oscinidae* or *Chloropidae*, in the shape of the body and the extensive yellowish markings. The third antennal joint of ♀♀ is shown in text-fig. 248, *a* (left one from outer side). The male of *laeta* s. str. is still unknown, but probably does not differ from that of the variety described below.

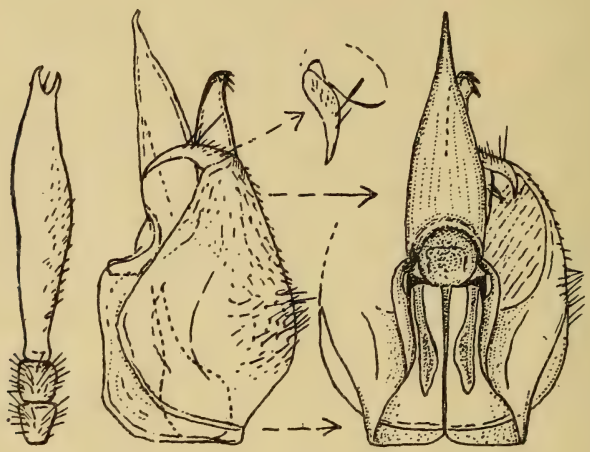
Locality.—Eastern Transvaal, Natal, Eastern Province and even the Western Cape Province. (In the Imp. Institute, British and South African Museums.)

2 ♂♂ 4 ♀♀ *P. laeta* var. *xerophila* n.

These specimens may be taken to represent a Karoo and Namaqualand variety of *laeta* s. str. The ♀♀ differ essentially in having no central black band on head above, no distinct, or a much less developed, transverse, black mark on each side of antennae, more or less yellowish first antennal joints, in having the pleural parts (along middle just below wings) predominantly or entirely yellow, in having the base of thorax discally yellowish, an entirely yellowish scutellum, the sides or hind borders of which are not, or scarcely, darkened, in having the abdomen above almost entirely yellow or pale reddish yellow, the hind margins being distinctly more broadly yellow, the extreme apical margins of which are sometimes more ivory whitish and the sides of the segments almost entirely or more broadly yellow,

the venter is predominantly yellow, with the femora more uniformly yellowish and the front ones not slightly darkened above and with the pubescence on body slightly denser and more yellowish sericeous to golden.

The ♂-specimens, which I take to belong to this species, have the body black; last ventral segment and the very narrow hind margins of venter yellowish; legs with the femora, tibiae and basal parts of tarsi yellowish as in ♀♀, only the apices of hind tibiae and



(*a*) (*b*)

TEXT-FIG. 248.—(*a*) Antenna of ♀ *Phthiria laeta* Bezz. (*b*) Side view and greater part of ventral view of hypopygium of ♂ *Phthiria latea* var. *xerophila* n.

the apical parts of all the tarsi dark blackish brown; pubescence sparse, but longer than in ♀♀, straw-coloured yellowish, that on genae and head below silvery whitish and that on frons also whitish; wings as in ♀♀, but with a scarcely evident yellowish tint in certain lights. *Head* with the eyes in contact above for a distance nearly 3 times as long as ocellar tubercle, with the distinctly coarser facets, in more than the upper half, well marked off from finer ones below; frons small, slightly convex; edge of buccal rims more or less sharp and separated from genae by a more or less distinct furrow; antennae with joint 1 very short, about as long as 2, with 3 somewhat spindle-shaped, shortish, without any distinct bristly hairs above; proboscis slender, about 1½ mm. long. *Hypopygium* (text-fig. 248, *b*) with the inner apical part of basal parts, in neck region, produced and ending apically along outer margin in a few short spines; beaked apical

joints elongate and narrow, flattened dorsoventrally and bearing a few bristly hairs and 2 conspicuous spine-like ones before the middle on outer side; aedeagus pointed and projecting beyond apical process of basal parts, with the posterior aedeagal strut on each side visibly projecting behind; lateral struts comparatively short and directed outwards and downwards.

Types in the South African Museum.

Length of body: about $3\frac{1}{2}$–$4\frac{1}{2}$ mm.

Length of wing: about $3\frac{2}{3}$–5 mm.

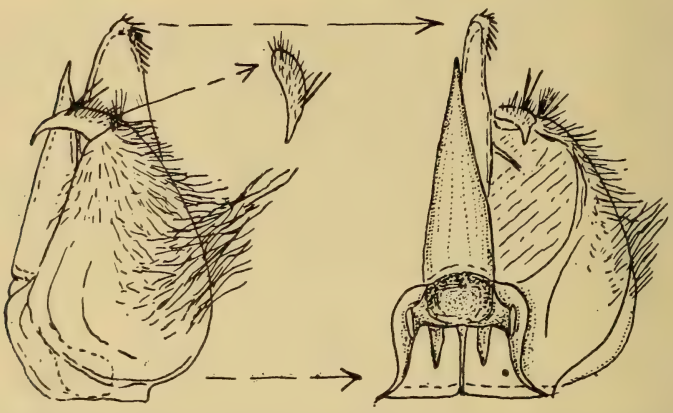
Locality.—Namaqualand: Garies Distr.; Klip Vlei (Mus. Exp., Nov. 1931) (Types and paratypes). S. Karoo: Worcester (Turner, Sept.–Oct. 1931) (British Museum); Prince Albert Rd. (Turner, Nov. 1931) (British Museum).

In the British Museum there are also 2 ♀♀, from Matjiesfontein, which probably constitute a bridging form between *laeta* s. str. and the var. *xerophila* in that much of the black on the head above is still present and the base of the thorax is also black.

1 ♂ 3 ♀♀ *P. crocogramma* n. sp.

Body black, entirely black in ♂, only the hind margins of venter scarcely yellowish, with the following yellowish or ivory yellowish spots and markings in the ♀♀; the head above (excepting a broad, central black band from occiput to antennae), the margins behind eyes, the sides of face and genae, the head below (excepting a broad central black band), the humeral angle and side in front of wing-bases on each side of thorax above, an elongate spot and posterior calli on each side of thorax, the greater part of scutellum, the small area around anterior spiracle, a transverse band across chest above front coxae, a spot at base of wing, an elongated spot along middle of mesopleurae, the middle of the metapleurae and down in front of last coxae, the comparatively broad hind margins of the abdominal segments, sometimes very broad on sides of segments 1 and 2, the broad hind margins of venter and the sides of venter; legs, including coxae and trochanters, black, only the knees yellowish, with the hairs whitish and the spicules on tibiae black; pubescence short and sparse in ♀♀ as in *laeta*, only that on occiput, sides of thorax, on scutellum and sides of abdomen slightly longer, almost absent on pleural parts, all almost whitish to very pale sericeous yellowish on thorax and abdomen above, sparse but longer in ♂ and whitish, that on frons, sides of face, genae and on apices of femora blackish in ♂; wings glassy hyaline, iridescent.

with the apical part of costal cell yellowish, with the veins brownish, becoming more yellowish towards base, the discal cross vein at about, or just a little beyond, middle of discoidal cell, the discoidal cell scarcely narrower basally than apically, with the squamae pellucid and fringed with sparse, short, whitish hairs; halteres yellowish brown or yellowish, the knobs almost whitish. *Head* with the interocular space on vertex in ♀♀ about 2 times as broad as tubercle, with the eyes in contact above in ♂ for a distance quite 2 times as long as tubercle,



TEXT-FIG. 249.—Side view and greater part of ventral view of hypopygium of ♂ *Phthiria crocogramma* n. sp.

the upper facets coarser than those in lower half; frons in ♀♀ transversely depressed just beyond middle as in *laeta*, the front part thus raised and somewhat convex, longitudinally convex in ♂; antennae with joint 1 very short, not longer than 2, transverse, with joint 3 broad (from side), elongate, somewhat spindle-shaped, usually broadest near or just before middle, with some fine, scattered hairs above, stronger and more conspicuous in ♂, the joint laterally compressed and ending near apex above in a short, spine-like process, not quite forming a symmetrical bifid process with the slightly stouter and more prominent lower apical process and with the terminal joints only indicated as a slender, short, bristle-like style just above base of lower apical process; face in front above almost wanting, the buccal rims somewhat sharply edge-like, prominent, the buccal cavity thus funnel-shaped, without any distinct furrow between it and the genae; proboscis comparatively stout, about 3–3$\frac{1}{3}$ mm. long; palps slender and straight. *Hypopygium* of ♂ (text-fig. 249) much like that of *laeta* v. *xerophila* (cf. text-fig. 248, *b*), with, however, very much longer and

denser hairs on basal parts, those in neck region also long, with the inner apical process of basal parts also broader from side and with more numerous and longer spines in the apical crest; beaked apical joints with longer and denser hairs above and, like *xerophila*, with two longer and more conspicuous spine-like bristles towards their apices; aedeagus much shorter, not projecting beyond apical process and with the posterior aedeagal struts shorter; the posterior structures on the whole shorter than in *laeta* (shown a little too short in the figure).

Types in the South African Museum.

Length of body: about 5–5½ mm.

Length of wing: about 5–6 mm.

Locality.—South West Africa: Kaokoveld; Kaross (Mus. Exp., Feb. 1925).

Easily separated from *laeta* by the black legs, less extensively yellowish pleurae and by characters given in the key. The species seems to be slightly variable in the nature of the yellow markings. One paratype, from Kaross, differs from the allotype-♀ in having the base of the thorax above also yellow, the scutellum more extensively yellow and the entire frons and sides of head above also yellow and without a central black band. In this respect it appears to bear the same varietal relationship to the typical form as the var. *xerophila* bears to *laeta* s. str.

3 ♀♀ *P. cognata* n. sp.

These three females are almost inseparable from ♀♀ of *crocogramma*. They nevertheless show certain distinct and constant differences which appear to be specific. From *crocogramma* they differ in being slightly smaller, less bulky. The yellow markings on body with the following differences: no yellow behind eye margins on each side of occiput, yellow markings on pleurae less extensive, the mesopleuron and greater part of sternopleuron being black, the yellow on scutellum more discal, the sides of scutellum being more broadly black and yellow hind margins of tergites and sternites distinctly very much narrower and less conspicuous and the knees scarcely or only very obscurely yellowish; pubescence on the whole whiter, that on thorax above not slightly sericeous yellowish; wings slightly shorter and narrower in relation to body, distinctly tinted subopaquely milky whitish and not so clear glassy hyaline as in *crocogramma*. *Head* with the interocular space on vertex narrower, even less than 2 times as

broad as ocellar tubercle, with the upper apical spine of third antennal joint slightly less subapical in position and thus forming a more symmetrical bifid process with lower one, with the proboscis shorter and less stout, only about 2 mm. long.

Type in the South African Museum.

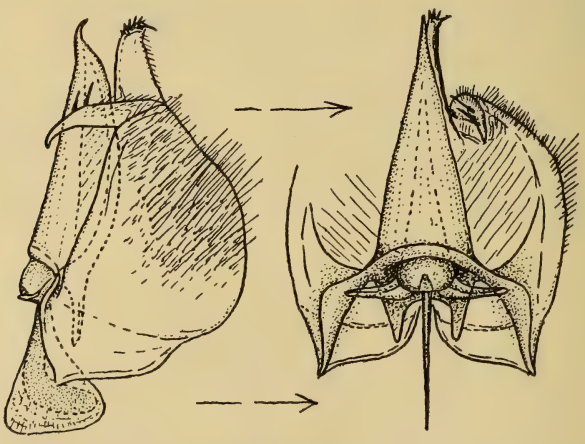
Length of body: about 3 mm.

Length of wing: about 4 mm.

Locality.—S.W. Africa: Damaraland; Narebis (Barnard, Feb. 1921) (Type). Kaokoveld: Kamanyab (Mus. Exp., Mar. 1925).

1 ♂ *P. fallax* n. sp.

Body, including scutellum, black; narrow hind margins of venter and entire last sternite yellowish; knees, upper surfaces of front tibiae and the entire middle and hind tibiae yellowish, only the



TEXT-FIG. 250.—Side view and greater part of ventral view of hypopygium of ♂ *Phthiria fallax* n. sp.

extreme apices of the latter darkish; pubescence rather dense for this series, but less dense and shaggy than in the *lanigera*-series, predominantly white on body above and below, with sericeous gleams, that on thorax above slightly straw-coloured yellowish in certain lights, that at apex of abdomen more distinctly gleaming sericeous yellowish, that on coxae and femora whitish; wings glassy hyaline, iridescent, with a very feeble subopaquely milky whitish tint in costal cell, base and on alula, with the veins dark brownish, becoming pale yellowish at extreme base and along supernumerary

vein in costal cell, the apical half of costal border blackish, with the squamae subopaquely whitish and white-fringed; halteres with very pale yellowish white knobs. *Head* with the eyes in contact for a distance about 1½ times as long as ocellar tubercle, the upper coarser facets more or less well marked off from lower finer ones; frons tubercularly prominent behind antennae; antennae with joint 1 very short, only about as long as 2, with 3 subspindle-shaped, broadest just before middle but more narrowed apically than basally and slightly more rapidly apically along upper margin, ending apically in a symmetrically bifid process as in *laeta* and *flavigenualis*, without any distinct hairs above; proboscis about 3 mm. long, slender apically; palps elongate and slender. *Hypopygium* (text-fig. 250) superficially resembling that of *laeta* but with the aedeagus less projecting, the basally directed aedeagal struts above middle part distinctly much shorter, etc.

Type in the South African Museum.

Length of body: about 5 mm.

Length of wing: about 5 mm.

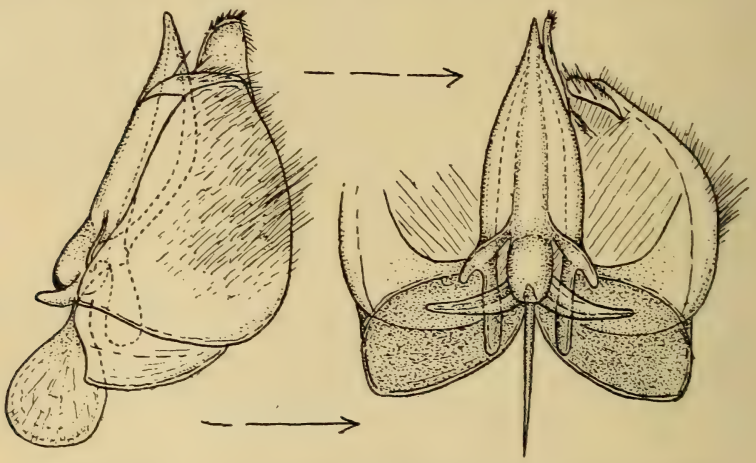
Locality.—Nieuwveld Escarpment: Fraserburg Distr.; Teekloof (Mus. Staff, Nov. 1935).

This species differs from ♂♂ of *laeta* and its varieties in having entirely black femora and slightly denser pubescence.

4 ♂♂ *P. flavigenualis* n. sp.

Body, including scutellum and legs, black; knees yellowish; pubescence sparse, entirely sericeous whitish above and below, that on thorax above, however, with very slightly pale sericeous yellowish gleams in certain lights and that at apex of abdomen also more sericeous yellowish, that on coxae and fine pubescent hairs on femora whitish; wings glassy hyaline, iridescent, with an almost imperceptible milky whitish tint in certain lights, with the alula and base very sligthly more subopaquely whitish, with the veins brownish, becoming pale yellowish towards base, the apical half of costal border and apical part of first longitudinal vein very dark, blackish brown or black, with the squamae subopaquely whitish and fringed with very fine white hairs; halteres with the knobs almost white. *Head* with the eyes above in contact for a distance about 1½ times as long as ocellar tubercle, with the coarser upper facets in more than upper halves of eyes more or less well marked off from finer lower ones; antennae with joint 1 very short, scarcely or about as long as short transverse

joint 2, with 3 spindle-shaped, broadest just before, or at about, middle, without any distinctly visible hairs above, with the processes at apex more or less symmetrically bifid as in *laeta*; proboscis about $1\frac{2}{3}$–2 mm. long, slender; palps very slender, rather long, the short apical joint clavate apically. *Hypopygium* (text-fig. 251) with the ramus from each side of each basal part ventrally produced on each side of aedeagus into a basally directed lobe (these structures are better made out in the figure); aedeagus rather blunt apically.



Text-fig. 251.—Side and greater part of ventral views of hypopygium of ♂ *Phthiria flavigenualis* n. sp.

Type in the South African Museum.

Length of body: about $3\frac{1}{2}$–4 mm.

Length of wing: about 4 mm.

Locality.—Central Karoo: Murraysburg Distr. (Mus. Staff, Nov. 1935).

This species obviously belongs to the *laeta*-series but differs from the ♂ of *laeta* in having an entirely black body, without yellowish hind margins even on venter and entirely black legs. From the ♂ of *crocogramma* it differs in having relatively shorter third antennal joints which are without distinct hairs above and which have the upper apical spine less subapical in position and thus forming with the equally developed lower one a more symmetrical bifid process, in having a shorter proboscis, entirely white hair on femora and shorter wings. This species may prove to be the same as *pulla* Bezz. (p. 78, Broteria (Ser. Zool.), vol. xx, Fasc. II, 1922).

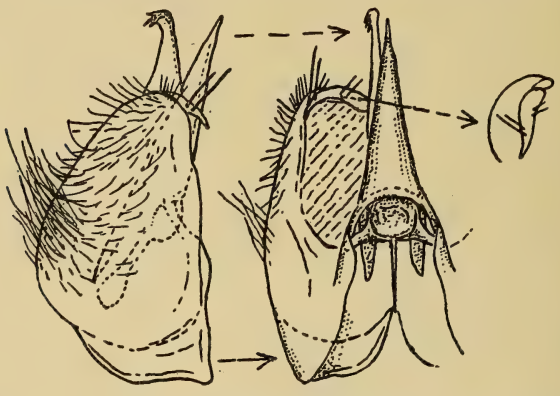
1 ♂ 1 ♀ *P. pubescens* Bezz. (in lit.).

(P. 98, Ann. S. Afr. Mus., vol. xviii, 1921; Bezzi, pp. 77 and 78, Broteria (Ser. Zool.), vol. xx, Fasc. II, 1922.)

The ♀-specimen was referred to *pubescens* Bezz. by Bezzi himself. In Broteria he referred a ♂ from Willowmore to the same species. This ♂ in the Hungarian Museum, never having been described and not represented in the material before me, is not determinable from the references and key in Broteria. The ♀ before me, on the other hand, was labelled by Bezzi as *pubescens* in his own handwriting and was partly described in the key and reference (pp. 96 and 98, Ann. S. Afr. Mus., vol. xviii). It is very doubtful whether the ♀-*pubescens*, as labelled by Bezzi, belongs to the same species as the ♂ in the Hungarian Museum. There is very little doubt, I think, that the ♂-specimen referred to in this paper does belong to the same species as the labelled ♀-*pubescens*. The species is thus described here and based on the ♀ in the South African Museum and the ♂ in the British Museum, without any reference to the ♂ in the Hungarian Museum:—

Body, including the legs, entirely black, the legs of the ♂, however, slightly more brownish; genae and edges of buccal cavity and the head below more or less brilliantly shining in ♀, less so in ♂; scutellum and abdomen also more or less shining; pubescence (as far as this is not denuded in ♀) short and sparse, straw-coloured, slightly longer in ♂, the depressed hairs on abdomen in ♀ more sericeous yellowish, the very fine depressed and bloom-like pubescence on sides of frons in front and down sides of upper parts of genae silvery whitish, the short hairs on femora sparse and slightly yellowish sericeous; wings distinctly though faintly, tinged yellowish or cinereous yellowish, appearing dusky or even slightly brownish in certain lights, with the veins yellowish brown, the costal and first longitudinal veins slightly darker, with the discal cross vein only a little beyond the middle of the discoidal cell and with the apical stalk of anal cell long and about as long as apical cross vein of discoidal cell; halteres yellowish, with pale dirty yellowish to whitish knobs, which in the ♂ are slightly darkened above towards base. *Head* with the interocular space on vertex in ♀ about 2 times as broad as tubercle, the eyes in ♂ in contact above for a distance nearly 2 times as long as the tubercle; frons transversely depressed at about middle in ♀, the front part only slightly raised, less than in ♀ of *lanigera* Bezz., more like that of *laeta* and *crocogramma*, in ♂ it is roundly convex; buccal rims somewhat edge-like and prominent as in *crocogramma* and without a distinct groove

between them and the genae; antennae with joint 1 very short, transverse and only about as long as 2, with joint 3 broadish, only a little narrowed apically and basally, ending apically in an upper and lower spine-like prominence, the two together forming an apical bifid process, the upper one very slightly more developed, with distinct, short, bristly hairs above on joint 3 in ♂; proboscis about 2 mm. long. *Hypopygium* of ♂ (text-fig. 252) with the basal parts provided with conspicuous hairs dorsally, the inner apical process in neck region long



TEXT-FIG. 252.—Side and greater part of ventral views of hypopygium of ♂ *Phthiria pubescens* Bezz.

and slender and provided apically with a crest of a few spines; beaked apical joints flattened, narrow, with two stoutish and conspicuous spine-like bristles near apex on outer side and two finer ones nearer base on inner side, otherwise without any distinct hairs; aedeagus straight and projecting beyond beaked apical joints; lateral struts and basal strut poorly or feebly developed.

Length of body: about 3½–4 mm.

Length of wing: about 4 mm.

Locality.—Transvaal: Junction of Marico and Crocodile Rivers (Tucker, Feb. 1918) (♀-Allotype). Natal: Weenen (Thomasset, Mar.–Apr. 1924) (♂-Holotype).

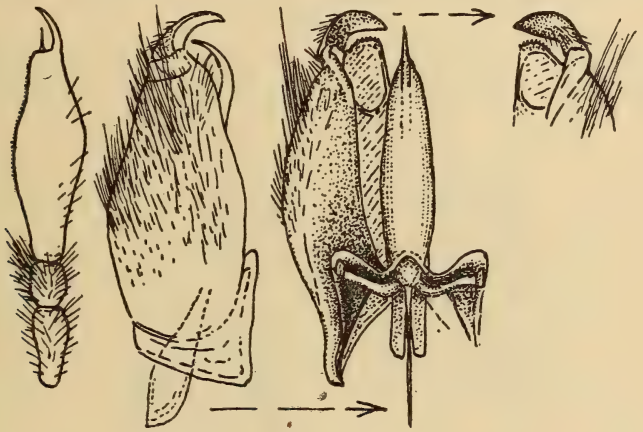
Easily recognised by the distinct dusky wings and the more or less shining front and lower part of head.

P. lanigera Bezz.

(P. 97, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species, in contrast to all the preceding ones, is characterised by its comparatively dense and long whitish pubescence in both sexes,

the absence of extensive yellow markings and the characteristic shape of the third antennal joint (text-fig. 253, *a* of ♀, left one from outer side) which is more or less humped, broadest at about or just before middle and ending apically in a comparatively long and well-developed upper apical spine-like process and a scarcely evident prominence below, with the latter of which is associated the terminal style or bristle. The ♀, contrary to Bezzi's statement that it is like the ♂, differs in addition to the sexual characters from the ♂ in having a



(*a*) (*b*)

Text-fig 253.—(*a*) Antenna of ♀ *Phthiria lanigera* Bezz. (*b*) Side and greater part of ventral views of hypopygium, and dorsal view of beaked apical joint of ♂ of the same species.

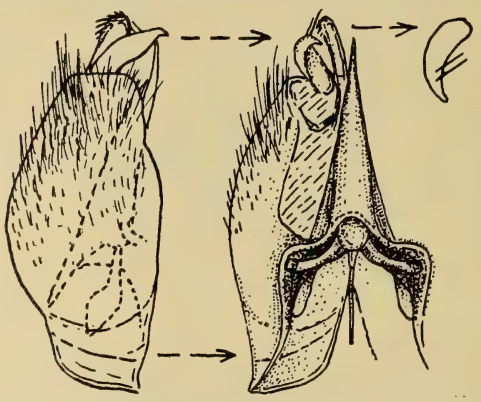
narrow line along hind margins of eyes, the greater part of head below, the genae and buccal cavity ivory yellowish to whitish and the humeral angle of thorax, a transverse band across chest above front coxae, a longitudinal central band on mesopleurae and the metapleurae (continuous with mesopleural band) as well as sides of first abdominal segment and sometimes even part of the venter ivory yellowish to yellow. Pubescence on ♀ above whitish to pale sericeous yellowish, the short depressed pubescence on disc of thorax, scutellum, abdomen above and even on head above sometimes golden, the bristly hairs on sides of face sometimes with numerous intermixed blackish ones. The interocular space on vertex in ♀ very little more than 2 times as broad as tubercle. The *hypopygium* of ♂ (text-fig. 253, *b*) with apically directed bristly hairs on basal parts, even longer towards neck region, with the inner apical part of basal parts not elongate and produced, broad and lobe-like (*see* ventral and dorsal views in middle

and extreme right of *b*), the margin with minute spines; beaked apical joints more or less hollowed out below, shaped as in figures and with sparse short hairs above, no stout and elongate spine-like bristles being present; aedeagus curved upwards in apical part, with the posterior aedeagal struts prominent posteriorly.

Locality.—S.W. Cape Province: Cape Peninsula and Hottentot's Holland Area. (In the British and South African Museums.)

1 ♂ *P. simmondsii* n. sp.

This unique ♂-specimen differs from the ♂-type of *lanigera* in having distinctly shorter and less dense, also whitish, pubescence,



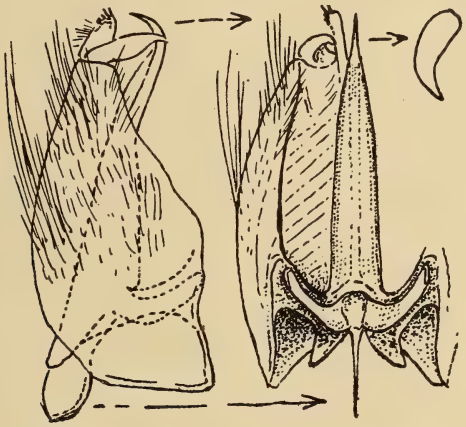
Text-fig. 254.—Side and greater part of ventral views of hypopygium of ♂ *Phthiria simmondsii* n. sp.

predominantly black hairs on frontal tubercle, the latter also distinctly duller and slightly more convex; antennae with joint 1 very much shorter, less than $1\frac{1}{2}$ times, only about as long as, length of 2, with joint 3 more elongate, less prominently humped at middle, its upper apical spine shorter, less prominent and slightly more curved downwards and the lower apical part apparently slightly more prominent; proboscis slightly shorter, only about $1\frac{1}{2}$ mm. long; wings as in *lanigera*. *Hypopygium* (text-fig. 254) differs from that of *lanigera* (cf. text-fig. 253, *b*) in having the inner apical part of basal parts distinctly produced into a process, the apex of which bears a crest of spines; beaked apical joints are less blunt and the inner part near apex bears two spine-like bristles as in those of *laeta* and *crocogramma*; aedeagus is almost straight apically and the basal strut is shorter and feebler.

Type in the British Museum.
Length of body: about 4 mm.
Length of wing: about 4 mm.
Locality.—S.W. Cape Province: Fransch Hoek (Simmonds, Nov.–Dec. 1930).

2 ♂♂ *P. nigribarba* n. sp.

Also very near *lanigera* Bezz., from the ♂-type of which they differ in having distinctly shorter and slightly less dense silvery white



Text-fig. 255.—Side and greater part of ventral views of hypopygium of ♂ *Phthiria nigribarba* n. sp.

pubescence, entirely black, bristly hairs on frons, face, genae and front part on head below, entirely black venter, without even narrow pallid or yellowish hind margins, more shining integument of thorax and scutellum above; wings also milky whitish, but with paler, more pallid or yellowish veins, with the veins separating fourth posterior and anal and anal and axillary cells straight, more straight than in any other species and with the apical stalk of anal cell also much longer than in other species; antennae with very much shorter first joints than in *lanigera*, these only about as long as 2 and with joint 3, though spindle-shaped and broadest at about middle, shorter and with a distinctly shorter and blunter upper apical process and also a prominent process apically below, the third joints are also more distinctly grooved on the inner side in apical part than in *lanigera* or *simmondsii*; halteres with the knobs entirely ivory yellowish and scarcely darkened above as in ♂-*lanigera*; legs with slightly shorter,

whitish pubescence and with the knees scarcely yellowish. From *simmondsii* it differs in the entirely black pubescence on frons, face and genae, the longer proboscis (about 2–2½ mm. long), absence of yellowish hind margins on venter, broader and shorter third antennal joints and by the wing-characters already given above. The *hypopygium* (text-fig. 255) somewhat like that of *simmondsii* (cf. text-fig. 254), but the forwardly directed bristly hairs on basal parts very much longer, especially those towards middle of dorsum; beaked apical joints without 2 visible stoutish hairs on inner side above near apex; aedeagus distinctly and rapidly curved upwards apically and on the whole more slender along its entire length; posterior processes to which ramus from each basal parts is also attached broader and more prominent.

Type in the Transvaal Museum.

Length of body: about 4–4½ mm.

Length of wing: about 4½ mm.

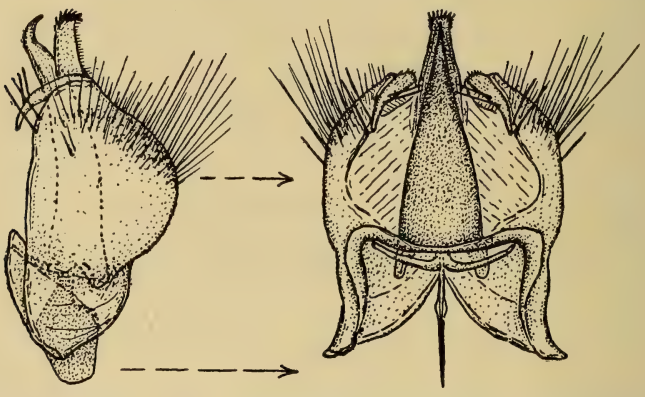
Locality.—S.W. Cape Province: Malmesbury (Brauns, Oct. 1926).

2 ♂♂ 3 ♀♀ *P. pilirostris* n. sp.

Head, antennae, proboscis, palps, thorax, scutellum, pleurae, more than the basal halves of abdominal tergites medially above, the genitalia and the basal halves of the sternites in ♂♂ black; the body of ♀♀ predominantly chrome to ochreous yellow, the pleurae, sides of thorax above and scutellum usually paler and more yellowish white to even ivory yellowish, with the third antennal joints, the hollow part of head behind connected with a central band to and including the ocellar tubercle, a broadish band narrowed anteriorly on each side of frontal part of head from eyes to antennal insertions, the proboscis and to a certain extent the palps, the lower part below post-alar calli on each side, the hypopleuron and sometimes lower part of sternopleuron, the basal parts of abdominal tergites medially and discally and becoming smaller towards apex, the bases of sternites, the last telescoped sternite (genital part) and sometimes two rows of spiracular or spiracle-like spots on each side of abdomen and even a row on each side of venter, black or blackish, with 3 broadish longitudinal bands discally on thorax brown to reddish brown, the lateral ones shortened and the central one extending down the declivity in front and on to the scutellum and all three usually becoming darker or more blackish brown posteriorly, the central one almost black down the declivity to pronotal part, with the lower part of meso-

pleuron and even on to pteropleuron and sometimes the pectus or lower halves of sternopleuron also dark or reddish brownish, with a distinct or indistinct brownish central spot also on frontal part of head above just behind antennae and with the basal parts of tergites on sides of abdomen also tending to be more brownish or the spiracle-like spots on sides of abdomen may be dark brownish; the comparatively broadish hind margins of the tergites and sternites in ♂♂ (broader on sides of abdomen) and the post-alar calli in ♂♂ ochreous yellowish; legs predominantly yellowish in ♀♀, the coxae more yellowish white, the trochanters more dark brownish, the apices of hind tibiae, the hind tarsi and greater part of the other tarsi in ♀♀ blackish to black, with the legs in ♂♂ predominantly black, the extreme apices of the femora, the greater part of the front and middle tibiae and bases or basal parts of hind tibiae, however, yellowish brown to reddish or sienna brownish; pubescence in density and length somewhat intermediate between the *laeta*-series and *lanigera*-series, however, denser and slightly longer in ♂♂ than in ♀♀, that on genae, basal part of thorax above, on scutellum and on front coxae in both sexes apparently the longest and more conspicuous, though sparser in ♀♀, that on abdomen in both sexes also conspicuous and more so than in the *laeta*-series but much less so than in the *lanigera*-series, that on legs in both sexes shortish, more pubescent than on body but denser, slightly longer in ♂♂, with the pubescence on body and legs in ♂♂ predominantly sericeous whitish, that on disc of thorax, scutellum and to a certain extent discally on abdomen above with distinctly more yellowish or sericeous yellowish gleams, that at apex of abdomen appearing dark or blackish, that on ocellar tubercle, sparse ones on frons, that on antennal joints 1 and 2, on the genae and on labral part of proboscis in ♂♂ distinctly black or very dark blackish brown, with the pubescence in ♀♀ on the whole more distinctly yellowish or sericeous yellowish, gleaming even more golden especially above, that on head and on labral part of proboscis also gleaming golden, that on body below and on legs slightly paler and more pale sericeous yellowish, with the hairs on genital segment appearing distinctly darker. *Wings* greyish hyaline, with a feeble, though distinct, yellowish to faint yellowish cinereous tint somewhat like those of *pubescens*, highly iridescent, with the extreme base distinctly pale yellowish, with the veins very dark blackish brown, only yellowish at extreme base, with the discal cross vein a little or distinctly beyond middle of discoidal cell, with the base of second submarginal cell not acute, moderately truncate, with the squamae slightly subopaquely

whitish or pale yellowish and fringed with whitish to pale sericeous yellowish hairs; halteres yellowish, with almost white or ivory whitish knobs. *Head* with the eyes in ♂♂ in actual contact above for a distance quite 1½ to nearly 2 times as long as ocellar tubercle, the line of contact somewhat impressed, with the coarser facets in upper two-thirds of eyes grading into finer lower ones, with the interocular space on vertex in ♀♀ comparatively broad and nearly 3 times as broad as tubercle; ocellar tubercle very prominent and



TEXT-FIG. 256.—Side and ventral views of hypopygium of ♂ *Phthiria pilirostris* n. sp.

pimple-like in ♂♂; eyes relatively larger in ♂♂, smaller and somewhat narrowed towards front part of head in ♀♀; sides of head behind eyes more exposed in ♀♀; frons in ♂♂ rather markedly convex and raised boss-like, in ♀♀ broad and long, the inner margins of eyes practically straight and gradually diverging apically, the transverse depression on frons in ♀♀ slightly beyond the middle and anterior part of frons also raised; frontal part of head in both sexes remarkably produced conically and narrowed apically with the antennae situated at apex and this front part beyond anterior level of eyes thus much more projecting than in other species and together with buccal part appearing more distinctly spout-like; face above buccal cavity practically non-existent, the sides of facial part and the genae well developed and more so than in other species; buccal cavity also with sharp edges; antennae with joints 1 and 2 very short, joint 1 only a little longer than 2 and slightly thicker than 2, with 2 transverse and broader than long, with 3 laterally compressed, elliptical, broadest just at about or slightly beyond middle, very much resembling that of *laeta* and as in the latter ending apically in an upper apical and a lower

apical process, the two constituting a bifid process which is more or less symmetrical, with a terminal stylar element on the inner side at base of lower apical process and with 2 or 3 distinct short bristly hairs in front of middle along dorsal margin, more distinct in ♂♂, with slightly more conspicuous and darker hairs on joints 1 and 2 in ♂♂ than in ♀♀; proboscis about 1½–2 mm. long, unique in this genus in having dense and fairly long hair on the labral part and which becomes shorter towards apex, ceasing just in front of junction of labella, the labella tapering apically; palps slender, conspicuous, quite ½–¾ mm. long, apparently shorter in ♂♂ than in ♀♀. *Legs* with the spicules on tibiae more apparent on middle and especially hind ones, those in ♂♂ more conspicuous and those on front tibiae in both sexes wanting; apical joint of tarsi with the hairs apically above not very conspicuous; claws well developed and curved downwards apically; pulvilli as long as claws and an empodium is visible medially as a short spine. *Hypopygium* of ♂ (text-fig. 256).

Types in the South African Museum.

Length of body: about 3½–4½ mm.

Length of wing: about 4 mm.

Locality.—Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

This peculiar species is easily recognisable by the presence of dense hair on the labral part of the proboscis, the markedly and conically produced frontal part of head, which is much more produced than in any other known South African species, the almost entirely yellow body in ♀♀ and the comparatively broad yellow hind margins of abdomen in ♂♂.

Species not seen by me.

P. pulla Bezz.

(P. 78, Broteria (Ser. Zool.), vol. xx, Fasc. II, 1922.)

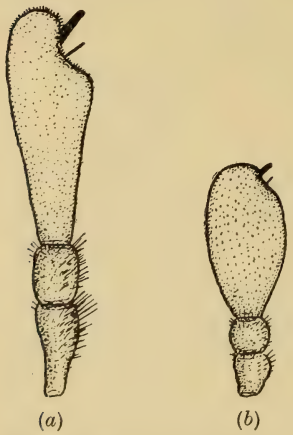
This species was described by Bezzi from a ♂-specimen from Willowmore. It is not represented in the collections before me and has not been incorporated in my key. From Bezzi's description it is difficult to place it in the key. He compares it with the ♂-*pubescens* Bezz. (in lit.) in the Hungarian Museum, which has never been described, and which is in all probability different from the *pubescens* Bezz. described in this paper. From his description of the third antennal joints and the pubescence, *pulla* appears to come in the *laeta* and *crocogramma*-series. It appears to differ from the ♂ of *laeta* var. *xerophila* n. in having black legs. From *nigribarba* it

differs in having white hairs on the frontal triangle and face. From *simmondsii* it appears to differ in size (2·8 mm. long), white hairs on the frons anteriorly, in having a more distinct bifid process apically on antennal joint 3, and in having broader yellowish knees. There is a probability that *flavigenualis* n. sp. may be the same as *pulla*.

Gen. *Apolysis* Lw.

(P. 197, Dipt. Faun. Südafr., i, 1860; Becker, p. 439, Ann. Mus. Zool. Acad. Imp. St. Petersb., vol. xvii, 1912; Engel, p. 127, Die Fliegen. d. Pal. Reg. Lief. 69 (Bombyliidae), 1933.)

This peculiar genus has been adequately described by Loew. Its chief diagnostic characters are the presence of only 3 posterior cells in the wings, absence of a discoidal cell, the straight second longitudinal vein and vein between submarginal cells, the apically acute and stalked anal cell, the broadly triangular axillary lobe and the apically spined and peculiar third antennal joints (*see* text-figs. 257, *a* and *b*). Additional points of interest are: eyes in ♂♂ usually in contact above but sometimes separated; the palps are either long and well developed, with the apical joint slightly thicker than basal one or the palps may be very short in some species; proboscis may be short and stoutish or even long and slender; pubescence, though sparse in comparison with some other genera, is usually denser and more developed than in *Oligodranes*, being denser and longer on head, genae, sides of thorax, scutellum and abdomen, longer on coxae and femora below, especially in ♂♂ and also in ♂♂ with a row of longer, fine hairs on outer sides of tibiae, which is rarely absent; thorax almost subglobularly convex; wings usually not markedly tinted milky whitish; abdomen with the last sternite in ♂♂ scoop-like and conically produced, with the hind margins above and below, especially in ♀♀, pallid or yellowish; last tarsal joint visibly broader than the other joints, bearing distinct longish bristly hairs apically, with the pulvilli well developed, conspicuous and strap-like, and the spine-



Text-fig. 257.—(*a*) Antenna of ♂ *Apolysis humilis* Lw. (*b*) Antenna of ♀ *Apolysis brevirostris* n. sp.

like empodium longish and distinctly discernible. *Hypopygium* of ♂♂ (text-figs. 258–262) with the inner apical angle or part (I.Ap.A.) of basal parts (Ba.Pt.) considerably produced and prominent, spinulated apically and acting as a sort of guide to the aedeagus; aedeagus also much produced beyond basal parts, lying along middle of scoop-like and conically produced last sternite (L.S.); beaked apical joints (shown enlarged to right of left-hand figure in text-fig. 258) small and provided on the inner side with a membranous, flattened process or flap, sometimes quite broad (text-figs. 261–262). There are probably very many more species of this genus than have been collected.

Key to known South African species.

1. (8) Palps elongate and conspicuous, at least as long as the antennae, the apical joints slightly thicker than the basal ones; antennal joint 3 distinctly longer, much more than 2 times as long as broad; wings on the whole slightly more elongate, more greyish or cinereous hyaline, even distinctly cinereous, with the veins on the whole darker; pubescence on body apparently slightly denser and more conspicuous even in ♀♀; larger forms about 3–4 mm. long, with a wing-length of about $3\frac{1}{4}$–$4\frac{1}{2}$ mm. . 2.
2. (3) Abdomen in both ♂♂ and ♀♀ with only very narrow, scarcely perceptible, pale, pallid or yellowish hind margins, those on venter often more conspicuous; pubescence on occiput, thorax above and scutellum in both sexes distinctly darker, even blackish or blackish brown; halteres in ♂♂ at least with the knobs darker or even blackish above ♂ ♀ *humilis* Lw. (p. 851).
3. (2) Abdomen in both sexes with more conspicuous or broad yellowish hind margins above and below and venter often entirely or almost entirely yellowish; pubescence on occiput, thorax above and scutellum in both sexes distinctly paler, almost whitish in known ♂♂ and much paler, more yellowish or pale yellowish brown, not blackish; halteres with the knobs in both sexes entirely very pale yellowish white or at least predominantly pale yellowish . . . . . 4.
4. (7) Wings more greyish or glassy hyaline, sometimes even with a very slight subopaquely whitish tint in certain lights; pubescence on occiput, thorax above and on scutellum slightly paler, whitish in known ♂ and straw-coloured yellowish in ♀♀, that on abdomen above in ♀♀ at least also paler and more whitish; last tergite in ♀♀ not predominantly yellowish . . . . . 5.
5. (6) Abdomen with only broadish yellowish hind margins above and below, the venter, even in ♀, not entirely or predominantly yellowish; wings comparatively longer, greyish or glassy hyaline, not distinctly subopaquely whitish in certain lights, with the second submarginal cell longer, at least subequal to length of part of third longitudinal vein from it to cross vein; legs on the whole darker; proboscis slightly longer about 2 mm. long . . . . . ♀ *cingulata* n. sp. (p. 853).

6. (5) Abdomen with the venter even in ♂♂ predominantly or entirely yellowish; wings apparently shorter, more subopaque, more distinctly subopaquely whitish in certain lights, with the second submarginal cell relatively shorter, much shorter than length of part of third longitudinal vein from it to cross vein; legs paler and more reddish brown; proboscis slightly shorter only about 1⅓ mm. long. . . ♂ *xanthogaster* n. sp. (p. 853).
7. (4) Wings with a distinct, though slight, smoky brownish or cinereous tinge, thus distinctly darker; pubescence on occiput, thorax and scutellum above slightly darker in ♀♀, deeper yellowish or even brownish in certain lights, that on abdomen above in ♀♀ at least slightly more yellowish or straw-coloured yellowish; last tergite in ♀♀ as well as venter predominantly or entirely yellowish . . . ♀ *fumalis* n. sp. (p. 855).
8. (1) Palps very short, not conspicuously visible and much shorter than antennae, the apical joints scarcely visible and not much thicker than basal ones; antennal joint 3 shorter, more ovate, not, or not very much more than, 2 times as long as broad; wings relatively shorter, clearer and with a more distinct and evident milky white tint, with the veins slightly or much paler or even whitish; pubescence on the whole distinctly sparser, even in ♂♂; smaller forms about 1½–3 mm. long, with a wing-length of about 1½–3 mm. . . . . 9.
9. (10) Proboscis very short and plump or stoutish, only about ½ mm. long; antennal joint 3 comparatively shorter, more ovate or oval; wings with the first basal cell scarcely longer than second basal cell, the veins darker; last tarsal joint scarcely more thickened or broader than the other joints, the bristly hairs apically also shorter, with the pulvilli less conspicuous and the spine-like empodium shorter; interocular space in ♀♀ slightly broader, at least 2 times as broad as ocellar tubercle; slightly smaller species, about 1½–2½ mm. long, with a wing-length of about 1½–2½ mm.; body above excepting only certain lines and spots, covered with slaty grey bloom . . ♂ ♀ *brevirostris* n. sp. (p. 856).
10. (9) Proboscis distinctly very much longer, much more than ½ mm. long, remarkably slender; antennal joint 3 slightly longer, more elongate-ovate; wings with the first basal cell distinctly much longer than second basal one, the veins much paler and even for the greater part much paler, very pale yellowish and sometimes even whitish towards base; last tarsal joint distinctly and visibly thickened or much broader than the others, the fine bristly hairs at its apex longer and more conspicuous, with the pulvilli more conspicuous and the spine-like empodium distinctly longer; interocular space in known ♀♀ narrower, scarcely, or slightly less than, 2 times as broad as tubercle; slightly larger species, about 2½–3 mm. long, and with the wings about 2⅔–3 mm. long; body without any greyish bloom on thorax at least, tending to be black or shining black . . . . . 11.
11. (14) Eyes in ♂♂ in actual contact above for a distance quite 3 times as long as ocellar tubercle, with the upper facets distinctly coarser than the lower ones; interocular space in ♀♀ distinctly narrower, subequal or even slightly narrower than length of antennal joint 3; knees black or dark like rest of legs; pubescence, though sparse, distinctly longer and denser, especially in ♂♂, that on coxae and legs very much denser,

longer and more conspicuous, and outer sides of tibiae with a row of distinctly longer hairs; wings slightly less conspicuously milky white, and with the veins at extreme base of wing darker and more blackish; hypopygium of ♂ (text-fig. 261) with the basal strut longer and more slender, with the lateral struts directed almost horizontally and the middle part of aedeagus slightly broader, etc. . . . . 12.

12. (13) Integument of body, especially thorax and scutellum shining; abdomen without or with scarcely perceptible pallid hind margins above and below; wings more distinctly subopaquely whitish towards base; halteres with the knobs tending to be more darkened above in ♂♂ ♂ ♀ *thornei* n. sp. (p. 857).

13. (12) Integument of body dull black, not brilliantly shining; abdomen with more distinct pallid hind margins, especially on sides and on venter; wings slightly less markedly whitish towards base; halteres with the knobs entirely whitish . . . . ♂ *thornei* n. sp. (p. 859). (Slight var.)

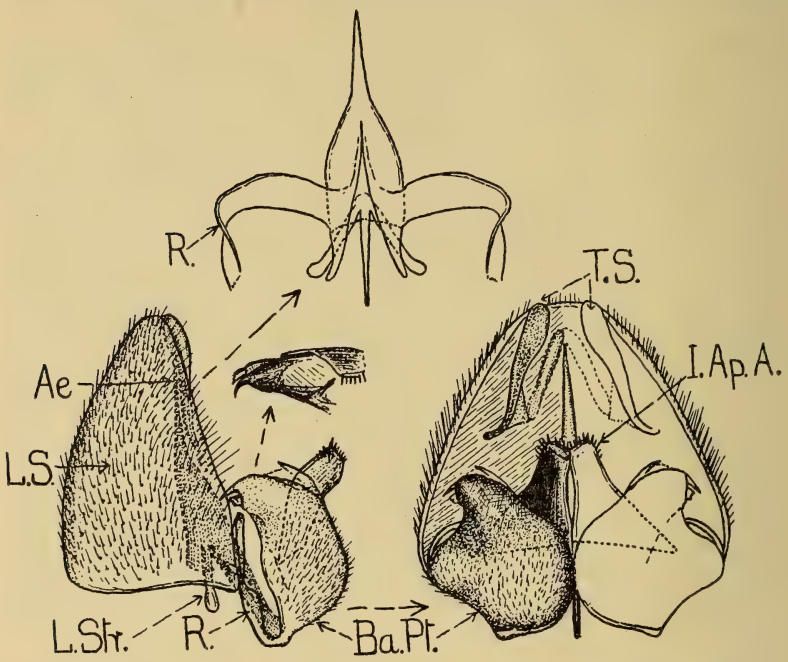
14. (11) Eyes in ♂♂ separated above by a space broader than the ocellar tubercle, by the width of one posterior ocellus on each side of tubercle, with the upper facets not coarser than lower ones; interocular space in ♀♀ slightly broader and a little broader than length of antennal joint 3; knees pallid or yellowish; pubescence distinctly much shorter and sparser (though longer in ♂ than in ♀), that on coxae and legs very much shorter and sparser, and without a row of longer, more conspicuous hairs on outer sides of tibiae; wings on the whole appearing more milky whitish, and with extreme base of wings less blackish and more brownish; hypopygium of ♂ (text-fig. 262) with the basal strut much shorter and broader, the lateral struts more directed basally, and the middle part of aedeagus narrower, etc. . . . . ♂ ♀ *maherniaphila* n. sp. (p. 859).

A. humilis Lw.

(P. 197, Dipt. Faun. Südafr., i, Tab. II, fig. 9, 1860; Bezzi, p. 102, Ann. S. Afr. Mus., vol. xviii, 1921; Engel, p. 130, Die Fliegen. d. Pal. Reg. Lief. 69 (Bombyliidae), 1933.)

From the clear and concise description of Loew it is quite easy to identify this species. It is characterised by the predominantly dark body in both sexes, the hind margins of the abdominal segments, even in ♀♀, only very narrowly and scarcely perceptibly yellowish or pallid, only the venter with slightly broader margins; pubescence on head above, on occiput, thorax and scutellum above, even in ♂♂, very dark, more blackish brown in certain lights, even those on sides of face with intermixed dark ones; body covered for the greater part with a greyish brown or slaty brownish bloom; wings not entirely clear but slightly dusky, feebly cinereous in certain lights, with the veins dark brownish, with the first basal cell not very much longer

than second basal one; halteres with the knobs distinctly darkened above in ♂♂; antennal joint 3 (text-fig. 257, *a* (♂)) typical for *Apolysis*, with joint 1 quite 1½ times as long as 2; proboscis about 1⅓–1½ mm. long, rather stoutish; palps conspicuous, elongate; eyes



Text-fig. 258.—Side and ventral views of hypopygium and last sternite of hypopygium and dorsal view of aedeagus of ♂ *Apolysis humilis* Lw.

in ♂♂ in actual contact for a distance quite 2⅓–2½ times as long as tubercle (front view), with the interocular space on vertex in ♀♀ nearly 3 times as broad as tubercle. *Hypopygium* of ♂ (text-fig. 258, side view, dorsal view and that of aedeagus and last sternite in position) showing the position of genitalia with respect to the last scoop-like sternite (L.S.) together with the embedded terminal segments (T.S.); beaked apical joints not separately visible but showing at apical part of basal parts (Ba.Pt.) as an outwardly directed tooth or spine (also shown enlarged); aedeagus (Ae.) (in position and from dorsal view in middle upper figure) and middle part together with the ramus (R.), by which it is attached to the basal parts on each side, are shown enlarged above, with the lateral struts (L.Str.) directed towards base of abdomen.

Locality.—S.-Western Cape Province and, according to Loew, also in the Eastern Cape (in the South African Museum).

This species was also collected by Dr. Bequaert on flowers in the Cape Peninsula. This species probably does not occur much beyond the South African subregion.

1 ♀ *A. cingulata* n. sp.

Body black; rims of buccal cavity, broadish hind margins of abdomen above and hind margins of venter broadly ivory yellowish, the abdomen itself rather shining; legs with the tibiae and tarsi tending to be less dark than the femora, more blackish brown, with the knees slightly yellowish; pubescence sparse, with that on occiput and thorax above deeper straw-coloured yellowish, that on face shorter and sparser than in ♀ of *humilis*, whitish, that on abdomen straw-coloured yellowish and not so white as in *humilis*, with that on legs more whitish, as in *humilis*, with the fine spicules on basal joints of tarsi having a slightly yellowish sheen; wings greyish hyaline, with a very slight subopacity, with the veins dark brownish throughout, with the second submarginal cell subequal or equal in length to part of third longitudinal vein to cross vein; halteres with the knobs very pale yellowish, only slightly darkened above towards base. *Head* with the interocular space on vertex a little more than 2 times as broad as ocellar tubercle; frons with the central and transverse depression rather shallow as in *humilis* but the transverse depression is less forward, the slightly raised part of frons in front thus longer than in *humilis*; antennae with joint 3, as in *humilis*, but slightly more narrowed basally (side view), thus appearing more humped behind the depression lodging the style, with the upwardly directed subapical spine-like process also a little longer; proboscis about 2 mm. long, slightly longer and also stouter than in *humilis*; palps also elongate and conspicuous.

Type in the Transvaal Museum.

Length of body: about 3½ mm.

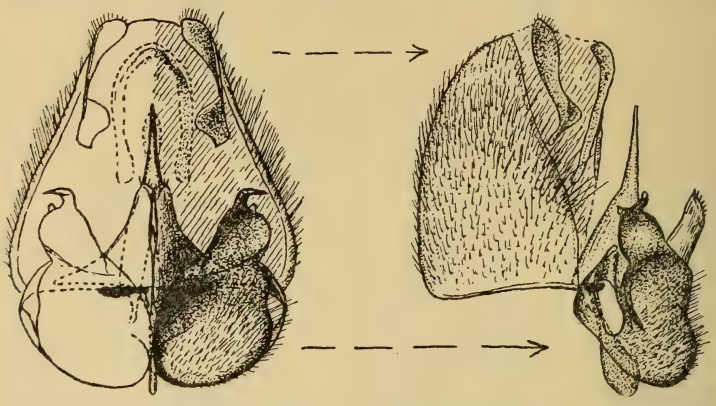
Length of wing: about 4 mm.

Locality.—Little Karoo: Willowmore (Brauns, 1/4/23).

1 ♂ *A. xanthogaster* n. sp.

Body black; antennal joints 1 and 2, palps, to a certain extent the proboscis, but especially the legs, reddish brownish, the tibiae and

tarsi even paler; hind margins of abdomen above pallid and the entire venter distinctly yellowish; pubescence on body above distinctly longer and more shaggy than in *humilis*, especially that on genae and thorax above, entirely whitish, that on femora also slightly longer than in *humilis*; wings rather shortish, relatively shorter than in *humilis* or *cingulata*, subopaquely greyish hyaline, with a slight milky whitish tint, more evident than in either *humilis* or *cingulata*, with the veins also paler, more yellowish brown, with



TEXT-FIG. 259.—Ventral and side views of hypopygium and last sternite in position of ♂ *Apolysis xanthogaster* n. sp.

the second submarginal cell comparatively short, its length much less than distance of third longitudinal vein from cross vein to base of second submarginal cell and the first basal cell about as long as second basal one; halteres with entirely very pale yellowish knobs. *Head* with the eyes in actual contact for a distance only about $1\frac{1}{2}$ times as long as tubercle; antennae with joint 1 even slightly shorter than in *humilis*, with joint 3 distinctly more narrowed basally (side view) and the apical part below the spine-like process slightly more produced than in *humilis*; proboscis only about $1\frac{1}{3}$ mm. long and on the whole more slender than in *humilis*; palps elongate. *Hypopygium* of ♂ (text-fig. 259, dorsal view and side view and also showing last sternite and its embedded terminal segments) like that of *humilis* (cf. text-fig. 258), but with the basal parts narrower, with the spine of beaked apical part directed more upwards; inner apical angle or part of basal part on each side narrower; lateral struts (shown in black) directed straight outwards and not towards base as in *humilis*.

Type in the British Museum.

Length of body: about 3 mm.

Length of wing: about $3\frac{1}{4}$ mm.

Locality.—O.F.S.: Harrismith (Turner, Mar. 1927).

This species may easily be recognised by its rather longish, pale pubescence, yellowish venter and shortish, somewhat subopaque, wings.

4 ♀♀ *A. fumalis* n. sp.

Body black, with greyish or brownish grey bloom on head, thorax and pleurae, two medial stripes, a broader lateral band and a spot above wings on each side of thorax, however, black; legs either blackish or tending to be dark brownish, even yellowish brown in some specimens; part of metapleural plate behind hind coxae, sides of first abdominal segment, the broadish hind margins of the other segments and the entire, or greater part of, venter yellowish, the last tergite also mainly yellowish, the last sternite, however, black or dark; pubescence similar in density to that of *humilis*, that on occiput, thorax and scutellum above, not very dark but yellowish, that on occiput slightly darker, that on genae pale straw-coloured yellowish, that on abdomen also more or less straw-coloured to sericeous yellowish, that on legs slightly more whitish; wings rather long, distinctly, though faintly, tinged dusky or smoky brownish, with the veins dark brownish to blackish brown, with the second submarginal cell elongate, subequal in length to part of third longitudinal vein from cross vein to base of submarginal cell, the first basal cell only a very little longer than second basal one; halteres with the knobs entirely pale yellowish. *Head* with the interocular space about, or a little more than, 2 times as broad as tubercle; frons with the transverse depression at about, or just a little beyond, middle; antennae with joint 3 more like that of *xanthogaster* than *humilis*, the apical part beyond spine more rotundately produced than in *humilis*; proboscis about $1\frac{1}{2}$–2 mm. long, rather stoutish; palps on the whole slightly shorter than in all the preceding species, scarcely as long as antennae.

Type in the British Museum.

Length of body: about 3–$3\frac{1}{2}$ mm.

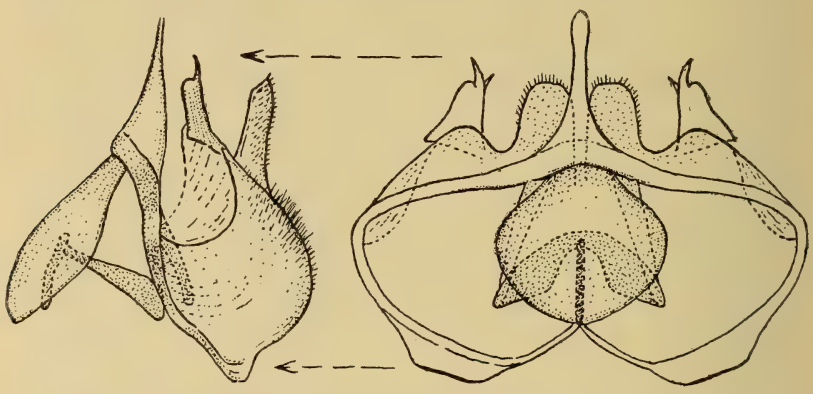
Length of wing: about 4–$4\frac{1}{4}$ mm.

Locality.—Natal: Weenen (Thomasset, 5/24) (Type), (Thomasset, 4/24). S. Rhodesia: Umtali; Vumbu (Mackie, 5/32) (Imp. Inst. Ent.).

Easily recognised by the relatively long, dusky wings and yellowish venter.

1 ♂ 4 ♀♀ *A. brevirostris* n. sp.

Body black, with slaty greyish bloom on body, two narrow central stripes, a median basal stripe and a much broader stripe (broken up into 2 large spots) on each side of thorax and in undenuded state a row of quadrate markings discally on abdomen on each side in ♀♀, black; legs in ♀♀ dark reddish brown or dark brownish even blackish, the tibiae and tarsi tending to be paler, on the whole darker in ♂; hind margins of abdomen above and below narrowly yellowish or pallid in



Text-fig. 260.—Side and ventral views of hypopygium of ♂ *Apolysis brevirostris* n. sp.

♀♀, those on venter sometimes very broadly so or at least more broadly than those above, entirely black in ♂; pubescence sparse, longer in ♂, predominantly or entirely whitish above and below, even that on occiput has a more whitish sheen than in *fumalis* or *cingulata*; wings rather shortish, clear or glassy hyaline with, however, a more distinct milky whitish tint in certain lights than in all preceding species, with the veins pale brown to dark brownish, with the first basal cell not, or scarcely, or only very slightly longer than the second basal one and second submarginal cell subequal or almost subequal to part of third longitudinal vein between it and cross vein; halteres with almost white knobs, the upper part tending to be slightly darkened towards base in some ♀-specimens, but distinctly blackened above in ♂. *Head* with the interocular space on vertex in ♀♀ about, or a little less than, 3 times as broad as ocellar tubercle, with the eyes in contact above for a short distance in ♂; frons with the depression in ♀♀ just before middle and more evident than the very shallow central depression; antennae (text-fig. 257, *b* ♀) with joint 1 very short, scarcely longer

than 2, with 3 especially in ♀♀ much shorter than in other species, more oval; proboscis remarkably short and stout for *Apolysis*, only about, or even less than, ½ mm. long; palps very short and not at all visible beyond buccal cavity as in other species. *Hypopygium* of ♂ (text-fig. 260).

♀-Type in the British Museum, ♂-type in the South African Museum.

Length of body: about 1½–2½ mm.

Length of wing: about 1½–2½ mm.

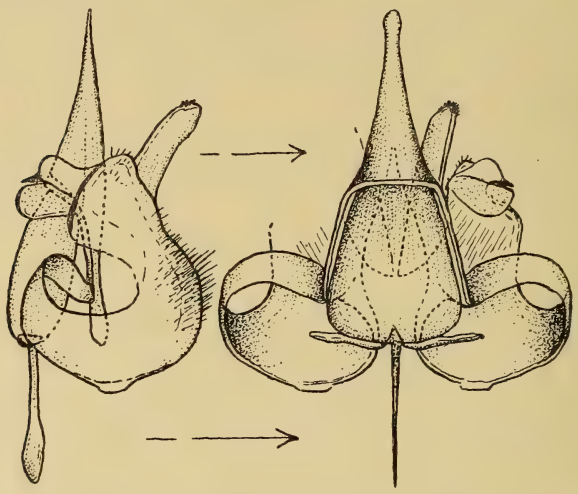
Locality.—S. Karoo: Matjiesfontein (Turner, 6–15/10/1928) (♀-Type); Worcester (Turner, Sept. 1928). Gouph Karoo: Prince Albert Road (Turner, Nov. 1931). Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936) (♂-Type).

Easily distinguished from all other species by its small size, very short proboscis, short palps and more hyaline wings.

7 ♂♂ 2 ♀♀ *A. thornei* n. sp.

Body black, with the head, thorax and pleural parts and to a certain extent the scutellum shining, sometimes brilliantly shining black, with the abdomen usually covered with a slaty grey bloom in both sexes; hind margins of abdominal segments, especially in ♀♀ very narrowly and often obscurely pallid or yellowish, only those on last few segments in ♀♀ more broadly or conspicuously pallid or yellowish; legs entirely black or very dark; pubescence on the whole much sparser than in other species of *Apolysis*, longer and denser in ♂♂, long and denser on genae, head below, antero-laterally on thorax, on scutellum and especially on abdomen in ♂♂, entirely silvery whitish in both sexes, that on frons and upper parts of genae in ♂♂ fine and shining silvery (viewed from above), that on femora in ♂♂ slightly longer and denser than in ♀♀; wings clear but with a very distinct milky white tint, more developed than in other species of *Apolysis*, with the veins pale, sometimes almost whitish in ♀♀, pale yellowish brown to pale brownish in ♂♂, becoming darker along costal part and apically in both sexes, with the extreme bases of main veins and base of wing black, with the first basal cell distinctly longer than second basal one and second submarginal cell subequal to, or sometimes even slightly longer than part of third longitudinal vein from cross vein to base of submarginal cell, with the apical stalk of closed anal cell rather long, with the squamae opaquely whitish, white-fringed and its basal part black; halteres with almost white knobs, which are slightly darkened above in ♂♂. *Head* with the eyes in ♂♂ in actual contact

above for a distance quite 3 times as long as ocellar tubercle, separated on vertex in ♀♀ by a distance about or even slightly less than 2 times as broad as tubercle; frons transversely depressed in ♀♀ slightly before, or at about, middle, convex, small and triangular in ♂♂; antennae rather short, with joint 1 very short only a little, or sometimes scarcely, longer than 2, with 3 rather short, relatively shorter than in other species (*brevirostris* excepted), more oval, the apical rounded part beyond apical spine even slightly less roundly produced than in



Text-fig. 261.—Side and greater part of ventral views of hypopygium of ♂ *Apolysis thornei* n. sp.

humilis; proboscis slender, rather long, curved, more slender than in all the preceding species of *Apolysis* and more like that of the following species *maherniaphila*, about 1½–2 mm. long; palps very short, confined to extreme base of proboscis and not visibly projecting. *Abdomen* in ♂♂ with the last sternite scoop-like and scarcely less conical than in *humilis*. *Hypopygium* of ♂ (text-fig. 261, and without last sternite in position) with the flattened lobe on inner side of beaked apical joints broader and larger than in *humilis* or *xanthogaster*; lateral ramus on each side attached to aedeagus as shown in figures.

Types in the South African Museum.

Length of body: about 2½–3 mm.

Length of wing: about 2–3 mm.

Locality.—Nieuwveld Karoo: Beaufort West–Victoria West Distr.; Melton Wold (Mus. Exp., Oct. 1935) (Holotype); Beaufort West Distr. (Mus. Exp., Oct. 1935) (Allotype). Moordenaars Karoo

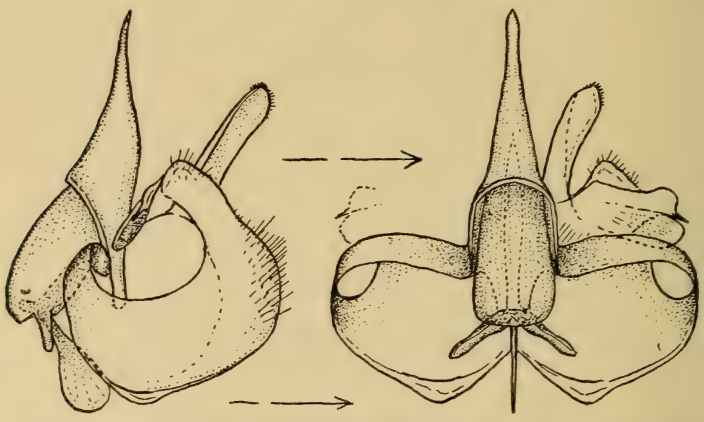
(Laingsburg Distr.) (Mus. Exp., March 1937). Namaqualand: Kamieskroon (Mus. Exp., Sept. 1930).

This species is easily distinguished from all the preceding species of *Apolysis* by its very slender proboscis, very short palps, clear milky white wings, comparatively sparse and entirely whitish pubescence and shining anterior part of body. Its resemblance to *A. maherniaplula* n. sp., the following species, is very remarkable and in the ♀♀ the only differences are the more distinct and more conspicuous, though short, pubescence on body, longer hairs on femora and also on outer sides of tibiae, less conspicuously milky white wings, distinctly much narrower interocular space and legs without yellowish knees. These insects were caught by Mr. Thorne and myself in the corolla tubes of the red flowers of *Mahernia grandiflora* and *M. nana*. The 3 ♂♂ from the Moordenaars Karoo in the Laingsburg District and the single specimen, from Kamieskroon in Namaqualand, appear to be structurally identical with the typical ♂♂ of *thornei*, differing only in not having the front part of body and pleurae so brilliantly shining, in having the pallid hind margins of tergites, especially on sides, and of sternites sometimes more conspicuous and in having the knobs of halteres entirely whitish. These specimens may be taken to represent a slight variety or deviation from the types. The specimens from the Moordenaars Karoo were taken by Mr. Thorne from the corolla tubes of *Mahernia nana*.

9 ♂♂ 4 ♀♀ *A. maherniaphila* n. sp.

Body and legs black, with the thorax and scutellum shining black, the abdomen dull black and with ashy grey or greyish bloom; narrow hind margins of abdominal segments above and below pallid to yellowish especially in ♀♀ and more broadly so towards apex and on sides in ♀♀, sometimes scarcely visible in some ♂♂; knees pallid or yellowish in both sexes; third antennal joints tending to be dark blackish brown or even dark brownish in some specimens; pubescence silvery whitish, short and sparse on occiput, frons and genae, slightly longer on head behind eyes, practically absent on thorax above only present antero-laterally on each side, sparse and short on scutellum, practically only sparsely present on mesopleural part, but denser on abdomen in both sexes, on the whole slightly more conspicuous all over body in ♂♂, also with a few longish ones on coxae, with the pubescence on legs also silvery whitish, sparse and fine, those on femora below in ♂♂ only slightly longer than in ♀♀,

but not developed to the same extent as in other species of *Apolysis*, with those on tibiae fine and short and without conspicuous longish ones on the outer side as in other species of *Apolysis*; wings with a distinct subopaque milky white tint, more developed and more conspicuous than in any species of related genera, with only the extreme base of wing blackish, with the veins dark along apical half of costal part and apical part of wing, the greater part towards base, however, whitish and pallid, with the squamae opaquely milky



TEXT-FIG. 262.—Side and greater part of ventral views of hypopygium of ♂ *Apolysis maherniaphila* n. sp.

white, with the cross vein on long second posterior cell (i.e. combined discoidal and second posterior cell) a little beyond level of second basal cell, the second basal cell thus distinctly much shorter than first basal cell; halteres with almost white knobs and a slightly brownish and dark base. *Head* with the eyes separated above in ♂♂, the interocular space on vertex a little narrower in ♂♂ than in ♀♀, broader than the broad ocellar tubercle on each side by the width of one posterior ocellus in ♂♂, about 2 times as broad as ocellar tubercle in ♀♀, with the tubercle slightly more raised in the ♂♂; frons transversely depressed at about middle, the depression extending medially towards tubercle as well, the front part towards antennal insertions thus appearing slightly more raised; face just below antennae and above buccal cavity practically non-existent; genae very narrow, practically linear, broader only along their upper parts; buccal cavity comparatively broad and separated from inner margins of eyes and narrow genae by a scarcely perceptible groove; antennae with joint 1 very short, only a little more, or scarcely more, than the

length of 2, with 3 rather short, tending to be only a little more than 2 times as long as broad; proboscis slender, comparatively long and curved, about $1\frac{1}{3}$–$1\frac{2}{3}$ mm. long; palps short, equally thick throughout and joints scarcely separately visible, but apical joint apparently scarcely shorter than basal one. *Legs* with the claws well developed though small, curved and with the pulvilli well developed, broadish and extending even slightly beyond the claws. *Hypopygium* of ♂ (text-fig. 262) resembling that of *Thornei*, but with the basal strut much shorter and broader; other differences may be seen by a comparison of figs. 261 and 262.

Types in the South African Museum.

Length of body: about 2–$2\frac{1}{2}$ mm.

Length of wing: about 2–$2\frac{2}{3}$ mm.

Locality.—Nieuwveld Karoo: Beaufort West Distr.; Leeukloof (Mus. Exp., Oct. 1935) (Types); Beaufort West–Victoria West Distr.; Melton Wold (Mus. Exp., Oct. 1935).

These insects are easily recognisable by the shining black anterior part of body, long proboscis, milky white wings, white-knobbed halteres and sparse pubescence on front part of body. Like *Apolysis thornei* n. sp. they were found on or in the corolla tubes of the red flowers of *Mahernia grandiflora*, a plant which has a localised distribution in the Nieuwveld Karoo in the Beaufort West area. They seem to be associated with *Apolysis thornei* n. sp. in their connection with this plant and are invariably caught together with representatives of *A. thornei*. Similarity of environment and habits have resulted in a striking resemblance of these two species. Their morphological and ecological resemblance may thus be ascribed to convergence. This species differs from *thornei* in having more conspicuously milky white wings, separated eyes in the ♂♂, a distinctly sparser and shorter pubescence on the body and legs and without any row of longish hairs on the tibiae.

Gen. *Oligodranes* Lw.

(P. 160, Ent. Zeit. Stett., v, Tab. II, figs. 13–16, 1844; Becker, p. 440, Ann. Mus. Zool. Acad. Imp. St. Petersb., vol. xviii, 1912; Engel, p. 134, Die Fliegen. d. Pal. Reg. Lief. 69 (Bombyliidae), 1933.)

According to the descriptions and figures of Loew and Engel and the keys of Becker (loc. cit.) and Engel, there is very little doubt that four specimens in the collections before me belong to the Palaearctic

genus *Oligodranes*, first described from Greece and Asia Minor. These four specimens, representing two separate species, however, differ in certain important features from those described by Loew. They differ in having more slender and shorter palps, the apical joints of which are not "birnförmig," in having much shorter and sparser pubescence on body and legs, a differently shaped third antennal joint (cf. text-fig. 263, *a* and Loew (loc. cit., Tab. II, figs. 13 and 15)), and relatively more slender proboscis. As they represent the first recorded species from Southern Africa and the Ethiopian Region and probably deviate slightly from the Palaearctic forms, a detailed description of this genus, as based on the South African material, is appended:—

Body small, with the thorax roundly convex when viewed from the side, thus humped in appearance, with the pleurae slightly laterally compressed and high in conjunction with the humped thorax; pubescence very sparse, consisting of sparse, short, erect hairs on head, thorax and scutellum above and on abdomen, the pubescence slightly longer in ♂♂ and also more evident or conspicuous on abdomen in both sexes, short and inconspicuous even on occiput, with the pleural parts and pectus bare, with sparse hairs on coxae and with very fine, short, downy and inconspicuous hairs on legs. *Head* with the eyes above in known ♂ in actual contact for some distance, the upper facets coarser than the lower ones; interocular space on vertex in ♀♀ much broader than ocellar tubercle, the inner margins of eyes only gradually diverging anteriorly; frons thus only slightly broader apically than basally in ♀♀, very small in ♂, centrally slightly depressed in ♀♀ and also distinctly transversely towards apex, the part on which the antennae are situated, however, appearing slightly tumid; face below antennae practically absent as in other *Phthiriinae*, the buccal cavity extending up to antennal insertions; genae very narrow, practically absent in lower part where a very feeble or shallow furrow-like depression separates the edges of buccal cavity from inner margins of eyes; buccal cavity thus relatively broad; antennae (text-fig. 263, *a*) with the first joints inserted close together, very short as in *Apolysis*, with joints 1 and 2 combined much shorter than 3, with 3 much resembling that of *Apolysis*, somewhat laterally compressed, broad from side, ending apically in an upwardly directed process or spine, behind which there is apically and dorsally a slight depression or excavation lodging the true terminal elements in form of a fine, hair-like style; proboscis comparatively long and slender in relation to body, being

slightly more thickened basally; palps, in comparison with many species of *Apolysis*, not very long, though distinct, very slender throughout, the scarcely separately visible apical joint (more distinct in Palaearctic forms) not thicker than basal one. *Wings* with 2 submarginal cells and 3 posterior cells, with a distinct discoidal cell present, which has straight sides and a straight apical cross vein, with the anal cell acute apically and provided with a stalk, with the second longitudinal vein straight and both it and the vein between submarginal cells not bent up at their ends, with the second submarginal cell more obtuse and not so markedly acute basally as in *Apolysis*, with the discal cross vein much before middle of discoidal cell, with the axillary lobe well developed and triangularly lobate as in other Phthiriines, with the alula well developed and lobate; knobs of halteres oval. *Abdomen* with 7 visible tergites in ♂ and 8 in ♀♀, with the last sternite in ♂ slightly conical but not very elongate and pointed apically as in *Apolysis*. *Legs* without any spines on femora below, only with short pubescent hairs, shorter than in other Phthiriines and also with short hair on tibiae, no distinct stouter spicules being visible and without a row of longish hairs on outer side of hind tibiae, with the apical spurs on tibiae minute; tarsi with the last joint very slightly broader than the others, but with the apical bristly hairs much shorter and less conspicuous than in *Apolysis*, with the claws and pulvilli well developed but much less so than in the former two genera and the spine-like empodium visible but shorter and more insignificant than in *Apolysis*. *Hypopygium* of ♂ (text-fig. 263, *b*), based on that of *O. namaënsis* n. sp., very small, with the outer apical parts or angles of basal parts broad and triangular; beaked apical joints somewhat flattened and with short bristles or setae; aedeagal or middle part with the lateral struts almost vestigial, very small, the basally directed strut more or less lobe-like, with the aedeagus (as far as this can be made out) short and apparently in form of two stylet-like processes, the aedeagus produced basally and above middle part into an aedeagal strut on each side; lateral ramus on each side from basal parts joined on to apical aedeagal part.

The two known South African species may be separated as follows:—

1. (2) Body with the humeral angle, post-alar calli and hind margins of tergites and sternites in ♀ and the post-alar calli and the narrow hind margins of tergites and sternites in ♂ distinctly pallid or yellowish; antennal joint 1 slightly shorter and scarcely longer than 2; proboscis slightly

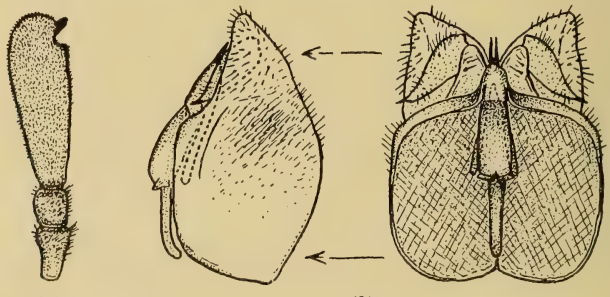
shorter, about 1 mm. long; palps apparently slightly shorter, not quite or scarcely as long as third antennal joint; wings with the veins slightly darker and more dark brownish to blackish brown

♂ ♀ *namaënsis* n. sp. (p. 864).

2. (1) Body with the humeral angle and post-alar calli in ♀♀ entirely black like rest of thorax and pleurae, the hind margins of tergites also entirely black or only very obscurely and narrowly greyish, the sternites with very narrow or scarcely perceptible pallid hind margins in ♀♀; antennal joint 1 slightly longer and distinctly longer than, quite 1½ times, as long as joint 2; proboscis distinctly longer, quite 1½ mm. long; palps apparently slightly longer, quite as long as, or even slightly longer than, third antennal joint; wings with the veins tending to be slightly paler and more yellowish . . . . . ♀ *elegans* n. sp. (p. 865).

1 ♂ 1 ♀ *O. namaënsis* n. sp.

Body, including scutellum and legs, black; the humeral angle and anterior spiracular area in ♀, infusions just below base of wings in both



Text-fig. 263.—(*a*) Antenna of ♀ *Oligodranes namaënsis* n. sp. (*b*) Side and ventral views of hypopygium of ♂ *Oligodranes namaënsis* n. sp.

sexes, the post-alar calli broadly in ♀, obscurely in ♂, the narrow hind margins of tergites and sternites, more conspicuous in ♀, yellowish; knees of femora tending to be pallid or yellowish; pubescence entirely whitish above and below, with sericeous gleams, that on thorax in ♀ with a feeble straw-coloured sheen in certain lights, very sparse in both sexes, but more evident on abdomen and on sides of thorax in front of wings. *Head* with the eyes above in ♂ in actual contact for a distance quite 2 times as long as ocellar tubercle, with the interocular space in ♀ about 2 times as broad as ocellar tubercle; antennae with joint 1 very short, only a little longer than joint 2, with 3 (text-fig. 263, *a* (♀)) broadish, about 2 times as long as 1 and 2 combined, broadest towards apex just behind slight excavation, gradually and very

slightly narrowed basally; proboscis slender, about 1 mm. long; palps very slender and not quite as long as third antennal joint. *Wings* hyaline, iridescent, with a very feeble milky whitish tint in certain lights, more distinct at base, with the veins brownish to dark brownish, becoming distinctly paler and more yellowish at extreme base, with the discal cross vein at about basal third or fourth of discoidal cell, with the squamae subopaquely whitish and fringed with very fine and sparse whitish hairs; halteres with almost white or whitish knobs. *Abdomen* with the last sternite in ♂ slightly longer than the others, more conical and slightly scoop-like. *Hypopygium* of ♂ (text-fig. 263, *b*) as described for the genus.

Types in the South African Museum.

Length of body: about 2 mm.

Length of wing: about 2½ mm.

Locality.—Namaqualand: Kamieskroon (Mus. Staff, Sept. 1930).

These specimens were obtained by sweeping flowering Mesembryanthemums.

2 ♀♀ *O. elegans* n. sp.

These two specimens differ only in slight details from *namaënsis*. *Body* black, the humeral part and posterior calli also black, only the sternites have very narrow and obscure pallid or yellowish hind margins; antennae, proboscis and legs very dark blackish brown to black; pubescence on body and legs whitish and with sericeous gleams, very sparse on body, that on abdomen more conspicuous, with a greyish bloom or pruinescence visible in certain lights on frons in front and around antennal insertions; wings hyaline and iridescent, with a very faint milky whitish tint in certain lights, more distinct towards base, with the veins slightly paler and more yellowish brown than in *namaënsis*, the squamae subopaquely whitish and also fringed with whitish hairs, the discal cross vein quite at basal third of discoidal cell; halteres yellowish, with the knobs very pale below, but slightly more yellowish or even tinged more brownish above. *Head* with the interocular space above about, or nearly, 2 times as broad as tubercle; frons with the central and anterior depression slightly more distinct than in *namaënsis*; antennae with joint 1 slightly longer than in *namaënsis*, quite 1½ times as long as 2, with 3 as in *namaënsis* but apparently slightly more truncate apically and with the extreme base tending to be pallid, also about 2 times as long as 1 and 2 combined; proboscis slightly curved and slightly longer, about 1½ mm. long;

palps very slightly longer than in *namaënsis*, quite as long as third antennal joints.

Type in the British Museum.

Length of body: about 2 mm.

Length of wing: about 2¼ mm.

Locality.—South West Africa: Great Namaqualand; Aus (Turner, December 1929).

Geroninae n. subfam.

The genera *Geron* Meig., *Amictogeron* n. gen. and *Pseudoamictus* Big., though having such characters in common as a straight second longitudinal vein, which does not markedly bend upwards at its end, an apically acute and stalked anal cell, more or less sparse and shortish pubescence, a humped thorax and a characteristic greyish white bloom on body above, nevertheless differ in certain important characters from the true Phthiriines. These characters, common to all three genera, are so distinctive that these genera can no longer be retained in the *Phthiriinae*, and the erection of a new subfamily *Geroninae*, based on the genus *Geron* Meig., is necessary.

The chief diagnostic characters of this new subfamily, as distinguished from the *Phthiriinae*, are as follows:—

Wings also with 3 posterior cells, but with the vein separating the discoidal and second posterior cells (the latter the combined second and third posterior cells of *Bombyliinae*) always distinctly and usually markedly S-curved, with the upper vein of second basal cell more or less always thickened or dilated, knob-like, near its base; abdomen normally with at least 8 segments visible in ♂♂ and 9 in ♀♀, with segment 8 in ♀♀ produced below on each side ventrally into a downwardly or posteriorly directed lobe-like or tongue-like process or lappet; antennae with joint 3 gradually tapering from a broader base to a sharp point or fine style, no distinct, separately visible, terminal joints or spine-like processes being present; interocular space on vertex in ♀♀ never much more than about 2 times as broad as ocellar tubercle; hairs on genae, lower parts of genae or front part of head below on each side always projecting or directed forwards to form a characteristic and usually very distinct, slightly upwardly directed, tuft or brush; tarsi with a group or clump of denser and longer spines, or at least with more numerous and slightly longer spines, below at bases of the first or basal joints of middle and hind tarsi, but especially on hind ones; thorax above, especially in ♀♀, usually with a fairly

conspicuous, central, longitudinal band, broader in front, and a lateral, narrow stripe or band on each side of dull greyish white or slaty grey bloom, the head above and below, the face, pleural parts and venter, especially in ♀♀, always with some or conspicuous dull greyish white or slaty grey bloom. *Hypopygium* of ♂♂ (text-figs. 264–298) distinctly more complex and entirely different from the type found in the *Bombyliinae* and *Phthiriinae*, mainly differing in having the basal parts single and not divided into two symmetrical parts by a medial dorsal suture or impression, in having no distinct, separately movable, beaked apical joints, these joints being represented by processes or lobes (Ap.Pr.), on each side apically of basal part, which are without tufts of hairs or scattered hairs; basal part itself with much of its surface poorly chitinised or even membranous; middle part usually ladle-shaped, with the lateral struts (L.Str.) and basal strut (Ba.Str.) directed inwards, with a sort of central guide (C.G.) on which the bases of the rami abut and which is produced apically on each side and dorsal or even ventral to aedeagus (Ae.) into a blade-like, prong-like or spine-like process (Pr.) and often basally into a blunt projection or process, sometimes with additional spines or prongs on each side of aedeagus or ventrally on each side at base of the apical lobes of basal part and even with a dorsal sheath-like guide (in *Geron*) to aedeagus; the arch-like junction of ramus (R.) (the rod or sclerite on each side connecting sides of basal part to the middle part) always towards or in apical half of basal part and assuming a variety of shapes, the ramus itself, or together with the sides of basal part, may be produced apically into strap-like, recurved, flattened, spine-like processes or even into spined processes. The numerous figures of the hypopygia of *Geron*, *Amictogeron* and *Pseudoamictus* will make clearer the differences when compared with those of *Bombyliinae* and *Phthiriinae*.

Gen. *Geron* Meig.

(Meigen, p. 169, Beschreib. Europ. Dipt., ii, 1851; Loew, p. 196, Dipt. Faun. Südafr., i, 1860; Brunetti, p. 279, Faun. Brit. Ind., vol. i, 1920; Bezzi, p. 98, Ann. S. Afr. Mus., vol. xviii, 1921, and p. 112, The Bombyliidae of the Ethiopian Region, 1924; Engel, p. 130, Die Fliegen. d. Pal. Reg. Lief., 69 (Bombyliidae), 1933.)

The fact that there are 3 posterior cells in the wings of at least 4 South African genera in the *Geron*-group has caused some confusion

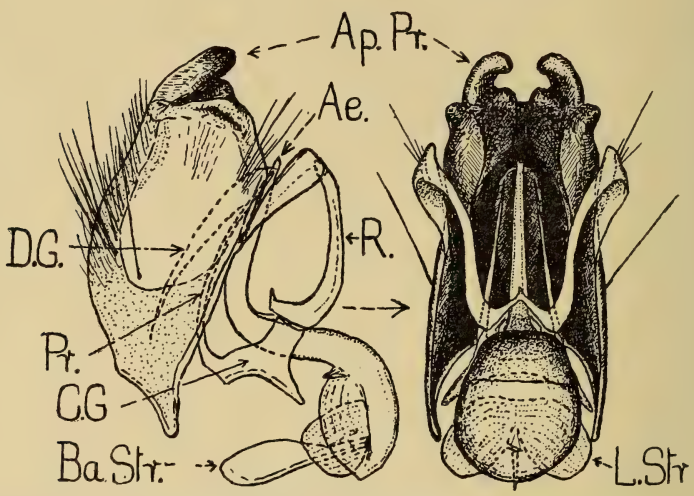
in the allocation of species to the various genera on the part of Bezzi at least. In his two papers (loc. cit.), dealing with South African species of *Geron*, he referred no less than 4 species, namely *barbatus* Bezz., *luctuosus* Bezz., *leptocerus* Bezz., and *dicroma* Bezz. (nec Macq.), to the genus *Geron*, all of which definitely do not belong to it, and which are referred to other genera in this paper. The generic characters of *Geron* have been based by Meigen, Loew, Becker, Paramonow and Engel on the Palaearctic species *gibbosus* Oliv. (*hybridus* Meig.) and its supposed varieties. The South African species, which have all been referred to *hybridus* by Loew and Bezzi, but which I am referring to new species, are generically identical with the European forms and may also be considered as showing the generic characters of *Geron* s.str. Three of these species, however, show distinct transitional characters, which connect *Geron* with *Pseudoamictus* Big. and *Amictogeron* n. gen.

The generic characters of *Geron*, as based on the South African species and some European representatives, are as follows:— *Body* with the thorax very convex above, distinctly humped, the pleural parts somewhat laterally compressed and the front coxae long in conjunction with a humped thorax. *Head* more or less globular, not dorso-ventrally compressed; eyes in ♂♂ always in contact above for some distance, the upper coarser facets imperceptibly merging into the lower and finer ones, the line of contact above rarely not distinctly impressed, with the interocular space in ♀♀ not more than 2 times as broad as ocellar tubercle on vertex; frons usually small in ♂♂, in ♀♀ gradually widening apically, distinctly transversely depressed from side to side anteriorly in ♀♀; face rarely without whitish hairs or flattened silvery scaling on sides and, if face is bare, the pubescence is at least conspicuous on each side of its base or on sides of antennae; genae narrow, sometimes ivory whitish or yellowish in both sexes, bare in the middle, usually with hairs or scale-like hairs on its upper part, without or with a very indistinct furrow between them and the buccal cavity; antennae close together or contiguous basally, with joint 1 always slender, rod-like, never longer than about 4 times as long as joint 2 and never with very long and shaggy hairs, with joint 3 gradually tapering to a fine point, no distinct terminal joints being separately visible; palps short, slender, not visibly jointed; proboscis long and slender. *Wings* with the second submarginal cell always less than 2 times as long along lower vein than broad apically, thus very much shorter than in the other related genera, with the alula always well developed

and produced tongue-like or lobe-like, with the vein between discoidal and second posterior cells only slightly or feebly S-curved, with the discal cross vein usually beyond the middle of the discoidal cell and rarely at exactly the middle, and with the wings never darkly infuscated but sometimes with a distinct opaque milky whitish tint; halteres very rarely with darkened or blackened knobs. *Abdomen* with the extreme sides of the tergites below rounded and lobe-like, overlapping the sternites and with the sides below of segment 8 in the ♀♀ produced into a lobe-like process on each side as in the other related genera. *Legs* without any spines on femora below, but with the spicules on tibiae visibly developed and sometimes conspicuous and in 4 rows on the hind ones at least, with at least one apical spur or spine below on the middle tibiae slightly longer than the others; claws well developed and curved downwards apically, and with the pulvilli also well developed. *Pubescence* on body with the erect hairs usually whitish, silvery whitish, or even slightly tinted yellowish, but never with distinct black hairs above on head, antennae, thorax and abdomen, with the erect hairs dense and longer only on occiput, head below, front part and sides of thorax, mesopleurae, the sides of abdomen, on venter and on coxae, those on rest of pleurae usually sparse, with fine hair-like scaling on thorax above, scutellum and to a certain extent on abdomen, especially in ♀♀, with the scaling on head, frons in ♀♀, mesopleuron, coxae, femora and venter in both sexes broader, more flattened, denser and silvery white. *Hypopygium* of ♂ (text-figs. 264–280), like that of the other *Geroninae*, is more complicated than in any other genus belonging to the *Bombyliidae-Homoeophthalmae*. The hypopygium can only be satisfactorily studied in a liquid medium. As in other *Geroninae* the basal parts form a single structure, not being divided into two symmetrical parts by a dorsal suture or impression and what is designated by me as dorsal is more commonly ventral in position in the intact and set insect, the aedeagus (Ae.) and its attendant structures being more constantly dorsal in position. The basal part is usually more membranous than chitinous on each side towards the apex, the membranous part not having hair or only a few bristly hairs. The dorsum sometimes with hairs towards apex and in some cases with a few or a row of distinct hook-like spines on each side (*see* text-figs. 274 and 275).

The distinct and freely movable beaked apical joints of other *Homoeophthalmae* are entirely absent, being represented simply by scarcely movable lobes, by paired or symmetrical extensions, pro-

cesses or lobes (Ap.Pr.) apically on the basal part. These processes in *Geron* (cf. text-figs. 264, 269 and 274) assume various shapes in the different species and are thus of taxonomic value in their separation. They are lobe-like, spine-like, hook-like or dentate and are represented singly, in duplicate or even in triplicate on each side apically. The aedeagal apparatus is complex, composed of a median straight, curved or even duplicated aedeagus proper (Ae.), ending basally in a spoon-shaped or ladle-like structure (side view),



Text-fig. 264.—Side and ventral (dorsal) views of hypopygium of ♂ *Geron gibbosus* Oliv. (=*hybridus* Meig.).

which has a lateral, flattened or flap-like process (L.Str.) on each side, corresponding to the lateral struts of other *Bombyliidae* and a dorsally (ventrally) directed bat or racket-shaped basal strut (Ba.Str.) as in other *Bombyliidae*. The medial aedeagal structure passes through a central guide (C.G.) which is usually produced into a flattened lobe-like process on each side towards base and apically is often pitchfork-like, produced into a long apically directed, straight or curved, spine-like or sabre-like process or prong (Pr.) on each side of the aedeagus either above or below. These prongs, when present, together with the aedeagus, are lodged in or move to and fro in a central or median dorsal (ventral) guide (D.G.) in the form of a partially chitinous or entirely chitinous trough-like or sheath-like structure, usually thinned out towards base or apex or broadened apically or basally, where it is also joined on to the subsidiary apical processes or lobes of the basal part by means of ligaments or mem-

branes. In some species where the central guide is not produced apically into a prong there is nevertheless present on each side a curved or U-twisted spine. Ventral (dorsal) to the aedeagus the central guide abuts, or is joined, on to the basal part apically on each side by a raised strap-like or arch-like ramus (R.), which is sometimes produced apically into a prominent flattened, lobe-like or even spine-like process (cf. text-figs. 264–280).

Geron differs from the other related genera, such as *Pseudoamictus* and *Amictogeron* by the very much shorter second submarginal cell, the more produced and lobe-like alula, the shorter, more slender and contiguous first antennal joints, which are always without conspicuously long hairs or black hair, the lateral hairs or scale-like pubescence on sides of antennae or face, the medially bare and narrower genae, the absence of shortish or long black hairs on frons, thorax or abdomen, and by the differences seen in the hypopygium of the ♂ (cf. text-figs. 281–298).

The separation of the species of Geron is a very difficult matter. External characters of taxonomic value are remarkably few and even these are so variable that they become unreliable when several species are examined. In the case of the ♀♀ it is almost impossible to distinguish the various species satisfactorily and more so to allocate them to their respecitve ♂♂. In the case of the ♂ it is absolutely necessary and essential that the hypopygium should be studied, for this structure appears to afford the only reliable evidence for their separation. The appended key to the known species is thus unsatisfactory, and most of the characters advanced are only of relative value. Species of *Geron* are usually poorly represented in collections and it is almost certain that more organised and concentrated field collecting will ultimately bring to light very many more species than are scattered through the various collections at present.

Of all the South African species before me at least 5 species, described by me as new below, have been seen by Bezzi and referred by him to the Palaearctic *gibbosus* Oliv. (*hybridus* Meig.) (Klassif. d. Zweifl., i, 186, 17, 1804, and also as syn. of *gibbosus* Meig., p. 169, Beschreib. Europ. Dipt., ii, 1851), and similarly representatives of the new species from South West Africa have probably been referred to *gibbosus* Oliv. (*hybridus* Meig.) by Loew (p. 196, Dipt. Faun. Südafr., i, 1860). Moreover, several specimens, from East and West Africa, in the British Museum have also been determined as *hybridus* by Bezzi (p. 114, The Bombyliidae of the Ethiopian Region, 1924).

Both Loew and Bezzi thus maintained that the Palaearctic *gibbosus* is very widely distributed throughout the Palaearctic and Ethiopian Regions. As I have tried to prove under other genera in this paper there are no reasons for believing that Palaearctic Bombyliids are found in Eastern and Southern Africa. The failure of both Loew and Bezzi to distinguish the Ethiopian species from the European forms is due to the remarkable similarity and uniformity of the external characters of the species of *Geron*. The British Museum has kindly placed at my disposal a ♂-specimen from British East Africa (coll. R. J. Stordy), a ♀ from South Nigeria (coll. G. C. Dudgeon), a ♂ from Haifa in Palestine and a ♀ from Nazareth also in Palestine; all reputed to be *gibbosus* Oliv. (*hybridus* Meig.). In addition to these there are in the South African Museum 2 somewhat damaged ♀-specimens from Europe. From this material it appears that there are at least 3 entirely different species all lumped together as *gibbosus*. In the first instance, the ♂ from British East Africa, also referred to by Bezzi (p. 114, The Bombyliidae of the Ethiopian Region), is definitely not *gibbosus* Oliv. (*hybridus* Meig.), but belongs to a new species, described by me below as *psammobates*. The ♀, from South Nigeria, also referred to by Bezzi (p. 114, loc. cit.), does not belong to the same species as the ♂ from East Africa, and also does not agree with the reputed ♀♀ of *gibbosus* from the Palaearctic Region. The ♂, from Haifa in Palestine, does more or less agree with the best existing description of *gibbosus* Oliv. (*hybridus* Meig.) given by Paramonow (p. 185 (123), Trav. Mus. Zool. Kiev, No. 6, 1929). The hypopygium of this ♂ is appended here (text-fig. 264) for comparison with the hypopygia (text-figs. 265–280) of the South African species. Whether this ♂ is a specimen of *gibbosus* s. str. is also doubtful. The ♀, from Nazareth, may or may not belong to the same species as the ♂ from Haifa. From all this it is very doubtful whether any of the other African specimens, referred to *gibbosus* (*hybridus*) and not seen by me, belong to Palaearctic forms, and also whether such Palaearctic forms as *hybridus* Meig., *gibbosus* Meig., *gibbosus* Oliv., *olivieri* Macq., *halteralis* Wied. and *erythropus* Bezz. may not be distinct and separate species after all, the separate specificity of which can only be cleared up by a study of the ♂ genitalia and a more thorough study of external characters.

Key to the South African species of Geron.

1. (10) Genae in both sexes entirely black or dull black and not ivory whitish or yellowish; pubescence on sides of face and down genae with more hairs and distinctly much fewer, narrower, less conspicuous, silvery white, scale-like hairs or scaling; hind margin of metapleural plate, above hind coxae, and sides of abdominal segment 1 entirely black or not distinctly yellowish or reddish; wings rarely with the veins pale and, when pale, they are slightly more subopaquely tinged yellowish; hypopygium of known ♂♂ with a single spine-like process or apical lobe apically on basal part, or with a spine-like process on each side at bases of apical lobes, but no distinct accessory, nodular or lobe-like, processes being present at their bases and with the stylet-like processes ventral to the aedeagus . . . . . 2.
2. (9) Second submarginal cell of wing longer and distinctly much longer than broad, and often nearly 2 times as long as broad; pubescence, on the whole, shorter and less dense, that on disc of thorax without intermixed dark ones; legs on the whole with all the tibiae darker and the spicules on them feebly developed; smaller species, about 4–5 mm. long, with a wing-length of about 4–5 mm. . . . . 3.
3. (8) Legs entirely black in both sexes; wings more feebly subopaquely whitish, with the veins much darker, brownish to very dark blackish brown to black, even the extreme bases of main veins at base of wings blackish and hind margins of squamae tending to be darker, with the discal cross vein nearer middle of discoidal cell; eyes in ♂ in actual contact above for a distance at least 3 times as long as tubercle, the frons much shorter; antennal joint 1 slightly longer, at least 3 times as long as 2 4.
4. (7) Wings with a distinct, even if only very faint, milky whitish tint in certain lights, the veins darker, more blackish brown to black and even dark at base; pubescence, especially in ♂♂, on the whole slightly less dense, entirely frosty whitish; eyes in ♂♂ in contact above for a shorter distance, usually about 3 or 4 times as long as ocellar tubercle; hypopygium of ♂♂ (text-figs. 265 and 266) with the apical lobes to basal part more or less directed outwards and without or with a small insignificant spine ventrally on each side at bases of apical lobes, with the basal strut much smaller, etc. . . . . 5.
5. (6) Knobs of halteres usually more blackened or very dark above in ♂♂; interocular space on vertex in ♀♀ narrower, only about 2 times broad as tubercle, subequal to, or about as broad as, length of antennal joint 1; proboscis slightly shorter, only about $1\frac{2}{3}$–2 mm. long; wings slightly less distinctly milky whitish; hypopygium of ♂ (text-fig. 265) with the apical lobes to basal part more horizontal and aedeagal complex slightly different (cf. text-figs. 265 and 266) . ♂ ♀ *nigerrimus* n. sp. (p. 884).
6. (5) Knobs of halteres predominantly ivory whitish above in ♂♂, only slightly darkened at extreme base above; interocular space on vertex in ♀♀ relatively broader and slightly broader than 2 times as broad as tubercle or more than length of antennal joint 1 and frons also relatively broader;

proboscis slightly longer and about 2½ mm. long; wings more distinctly tinged milky whitish; hypopygium of ♂ (text-fig. 266) with the apical lobes less horizontal and sometimes even slightly curved and with a slightly different aedeagal complex (cf. text-figures)

♂ ♀ *anceps* n. sp. (p. 885).

7. (4) Wings distinctly clearer and more vitreous hyaline, the veins slightly more brownish and more yellowish brown at base; pubescence in ♂ on the whole longer and denser, that on disc of thorax with faint straw-coloured yellowish gleams in certain lights; eyes in ♂ in contact above for a longer distance about 5, or nearly 5, times as long as tubercle; hypopygium (text-fig. 267) with the apical lobes projecting apically and with a pointed secondary spine ventrally at the base of each, with the basal strut rather large and broad, etc. . . . . ♂ *orthoperus* n. sp. (p. 887).

8. (3) Legs with the middle and hind tibiae in ♂ at least more yellowish brown; wings with a distinct, though faint, more subopaque greyish or yellowish tinge, with the veins pale yellowish brown even at extreme base, with the hind border of squamae pallid and with the discal cross vein more beyond middle of discoidal cell; eyes in ♂ in actual contact, or contiguous, only for a short distance, subequal to ocellar tubercle, the frons thus distinctly longer; antennal joint 1 slightly shorter and less than 3 times as long as 2 . . . . . ♂ *munroi* n. sp. (p. 888).

9. (2) Second submarginal cell shorter, less parallel and scarcely longer than broad apically; pubescence on the whole, especially on abdomen, in ♀ at least, longer and much denser, that on disc of thorax with intermixed darkish hairs; legs with the middle and hind tibiae paler yellowish and their spicules on at least the hind ones more strongly developed; larger species, about 6½ mm. long, with a wing-length of about 6½ mm.

♀ *nigrifacies* n. sp. (p. 889).

10. (1) Genae always ivory whitish or yellowish in both sexes; pubescence on sides of antennae, face and down genae, or at least on sides of antennae, composed of fewer hairs, but with a dense tuft or patch of more conspicuous and broader silvery white, scale-like hairs; hind margins of metapleural plate and sides of abdominal segments, especially in ♀♀, usually more distinctly and extensively yellowish or reddish; wings with the veins on the whole paler, pale brownish to yellowish, even at extreme bases of main veins; hypopygium of known ♂♂ (text-figs. 269–280) with accessory apical processes or distinct nodular structures at bases of the apical processes of basal part, with the aedeagus represented by a single medial part, having prongs or stylet-like processes dorsal to it . . . 11.

11. (12) Face in front of antennae more prominantly projecting, cone-like, more conspicuously brilliantly shining and without scaly, silvery white hairs on the sides, entirely smooth; wings with the second submarginal cell slightly, but distinctly, longer than broad apically; pubescence on vertex and ocellar tubercle in both sexes with some distinct dark, blackish brown or black bristly hairs . . . ♂ ♀ *nasutus* Bezz. (p. 890).

12. (11) Face in front not prominently projecting or cone-like and not brilliantly shining, usually dull and with distinct silvery white scaling or frosty white hairs on the sides in both sexes; wings with the second submarginal cell on the whole shorter and more usually broader apically, usually at

least as broad or even broader apically as long along the lower vein; pubescence on vertex and ocellar tubercle entirely white or pale, rarely sericeous yellowish or darker . . . . . 13.

13. (48) Legs with the femora predominantly or entirely dark or black and, if with yellowish, then only at extreme apices; sides of abdominal segments below and hind margins of venter in ♂♂ usually entirely dark or black, or at least less conspicuously yellowish; edge of metapleural plate, above hind coxae, sides of abdominal segment 1 and sides of some of the other segments usually darker, black or at least much less extensively and conspicuously yellowish or reddish in ♀♀; known ♀♀ usually with paler and more brassy yellowish to silvery scaling above . { ♂♂ (14). ♀♀ (34).

14. (25) Eyes in actual contact above for a longer distance, distinctly more and sometimes much more than 3 times as long as ocellar tubercle (front view), with the line of contact more deeply impressed . . . 15.

15. (22) Wings with a very faint, though distinct, milky white tint in certain lights, with the upper vein of second submarginal cell more distinctly S-curved, its base more distinctly bent at right angles to third longitudinal vein; face less convex along middle towards apex and there not distinctly ivory whitish or yellowish like the genae; femora entirely black or very dark, their apices also tending to be black; edge of metapleural plate and sides of first abdominal segment entirely dark or black; hypopygium (text-fig. 269, 270 and 280) without very long and conspicuous bristly hairs towards apex on basal part dorsally and on sides, and with the prongs of central guide much shorter . . . 16.

16. (17) Antennal joint 1 longer, at least 3, or even slightly more, times as long as 2 and with distinctly longer hairs; pubescence distinctly longer and denser, that on occiput, thorax in front and sides of face denser and longer and composed of flattened scale-like hairs and long hairs, those on squamae longer and more conspicuous; front tibiae on the whole darker; hypopygium (text-fig. 269) . *transvaalensis* n. sp. (p. 891).

17. (16) Antennal joint 1 shorter, less than 3 times as long as joint 2 and also with shorter hairs; pubescence shorter and less shaggy, that on sides of face shorter and composed only of flattened silvery scale-like hairs, that on squamae distinctly shorter; front tibiae more distinctly or entirely yellowish especially on upper surfaces; hypopygium (text-figs. 270 and 280) different . . . . . 18.

18. (19) Eyes in actual contact for a distance only a little more than 3 times as long as tubercle; wings more distinctly tinted milky whitish, with the upper vein of first posterior cell quite, or very nearly, 3 times as long as that part of it between first posterior and second submarginal cells; silvery white scaling on abdomen and legs denser; hypopygium (text-fig. 270) . . . . . *turneri* n. sp. (p. 893).

19. (18) Eyes in actual contact for a distance distinctly longer and much more than 3 times, even up to 5 times, as long as tubercle; wings more vitreous hyaline, the upper vein of first posterior cell distinctly much less than 3 times as long as the part of it between first posterior and second submarginal cells; silvery scaling on abdomen and legs less dense; hypopygium (text-fig. 280) . . . . . 20.

20. (21) Wings with the veins paler yellowish, without any distinct milky whitish tint even at base, with the discal cross vein only very little beyond or even at about the middle of discoidal cell; proboscis, relative to body, very much longer, about 3½ mm. long; smaller form, about 3½ mm. long and with a wing-length of about 4 mm.
nomadicus n. sp. (var. of) (p. 915).

21. (20) Wings with the veins darker and more brownish towards apex and with a very faint milky white tint towards base, with the discal cross vein much beyond middle of discoidal cell; proboscis very much shorter, about 2⅓ mm. long; slightly larger form, about 5 mm. long, with a wing-length of about 5 mm. . *nomadicus* n. sp. (var. of) (p. 915).

22. (15) Wings glassy or vitreous hyaline, with the upper vein of second submarginal cell less S-curved, its base less bent at right angles to third longitudinal vein; face slightly more convex medially towards apex and there with an ivory whitish or yellowish macula; middle and hind femora tending to be slightly more extensively or broadly yellowish apically; edge of metapleural plate and sides of first abdominal segment more conspicuously reddish and if not face has a macula; hypopygium (text-figs. 271 and 272) often with long and conspicuous bristly hairs towards apex dorsally and on sides and with the prongs of central guide very long or differently shaped . . . . . 23.

23. (24) Wings with the veins usually paler and more yellowish; pubescence on front part of thorax and sides and on abdomen denser and slightly longer; body more bulky and wings usually slightly longer, about 4½–5 mm. long and with a wing-length of about 4½–5½ mm. and with the scutellum broader and less tumid; hypopygium (text-fig. 271) with the apical processes of basal part arrow-head shaped, with long hairs on basal part, shorter rami, long prongs on each side from basal guide, etc. . . . . *maculifacies* n. sp. (p. 895).

24. (23) Wings with the veins usually darker especially towards apical parts; pubescence on front part and sides of thorax and on abdomen distinctly less dense; body distinctly narrower and smaller, about 3–4 mm. long and with a wing-length of about 4–4⅓ mm., with the scutellum narrower and distinctly more inflated or tumid in appearance; hypopygium (text-fig. 272) with slender, apically directed and finger-like apical process, short hair on basal part, produced rami on each side, etc.
gariepinus n. sp. (p. 897).

25. (14) Eyes in actual contact above for a shorter distance, scarcely more than 3, and even less, times as long as tubercle and with the line of contact less deeply impressed . . . . . 26.

26. (33) Legs with the tibiae and tarsi paler or at least predominantly pale yellowish; antennal joint 1 on the whole longer, usually more and even much more than 2½ times as long as 2; face without a pallid apical spot; wings with a more distinct milky white tint, with distinctly paler veins and with the discal cross vein tending to be definitely or much beyond middle of discoidal cell; pubescence longer and denser on body; hypopygium without 4 dentate or incisor-like processes in a row apically on basal part and with the central guide (through which aedeagus passes) not elongately stirrup-shaped; larger species, more than 3½ mm. long 27.

27. (30) Eyes in actual contact for a distance about 3 or slightly more times as long as tubercle; antennal joint 1 distinctly longer, a little more than 3 times as long as joint 2; proboscis stouter; second submarginal cell on the whole broader apically, its upper vein more S-curved and the apical cross vein of discoidal cell more distinctly S-curved; larger and more bulky species, about 5–6 mm. long and with a wing-length of about 5½–6 mm.; hypopygium (text-figs. 274 and 275) . . 28.
28. (29) Pubescence on body long, dense and shaggy, very dense on occiput, front part and sides of thorax and on venter; wings with the second submarginal cell distinctly broader apically, much broader than second posterior cell, the upper vein distinctly more S-curved and its apical part thus more bent upwards; front tibiae on the whole with more yellowish and the middle and hind tarsi more extensively yellowish at their bases; hypopygium (text-fig. 274) . *furcifer* n. sp. (p. 899).
29. (28) Pubescence on body shorter and sparser, not very conspicuously dense on head, thorax and abdomen; wings with the second submarginal cell distinctly narrower apically, not much broader than second posterior cell, its upper vein less markedly S-curved and less bent upwards apically; front tibiae much darker and bases of middle and hind tarsi less extensively yellowish; hypopygium (text-fig. 275) . *dubiosus* n. sp. (p. 901).
30. (27) Eyes in actual contact for a shorter distance, only about 2½–3 times as long as tubercle; antennal joint 1 shorter, scarcely and even distinctly shorter than 3 times as long as joint 2; proboscis distinctly more slender; second submarginal cell on the whole narrower apically, its upper vein distinctly less S-curved and its apical end practically straight; smaller species, more slender, about 5 mm. long and with a wing-length of about 5 mm.; hypopygium (text-fig. 276) . . . . . 31.
31. (32) Tibiae, especially middle and hind ones, and the bases of tarsi paler, pale yellowish to pale yellowish brown; wings with the veins paler and more yellowish, the vein between submarginal cells bent at right angles to meet third longitudinal vein; hypopygium (text-fig. 276) with the apical lobes of basal parts directed more apically and having a prominent secondary lobe on each side basally
♂ *australis* n. sp. (p. 902).
32. (31) Tibiae slightly darker and more brownish or dark brownish, the front ones and the apices of the others darker; wings with the veins distinctly darker, more blackish brown, the vein between submarginal cells less rapidly bent at right angles at its base; hypopygium with the apical lobes directed downwards and without a longish and prominent secondary lobe on each side at their bases . . . ♂ *dissors* n. sp. (p. 903).
33. (26) Legs with the tibiae and tarsi very dark; antennal joint 1 shorter, only about 2½ times as long as joint 2; face with a pallid apical spot; wings not distinctly tinted subopaquely milky whitish, but with even an almost imperceptible cinereous yellowish tint, with darker veins and with the discal cross vein tending to be at middle of discoidal cell; pubescence shorter and much sparser; hypopygium (text-fig. 277) with 4 incisor-like processes in a row apically on basal part and with the central guide elongately stirrup-shaped; small species, only about 3½ mm. long
parvus n. sp. (p. 905).

34. (41) Wings with a distinct and sometimes conspicuous subopaque milky white tint, with the veins on the whole paler, more pallid or yellowish . . . . . 35.
35. (40) Antennal joint 1 distinctly longer, at least 3, or even more, times as long as joint 2 and with distinctly longer hairs; interocular space broader, more than 2, even about 2½, times as broad as tubercle; pubescence on body distinctly longer, denser and more shaggy, that on occiput, front part and sides of thorax, mesopleuron and abdomen longer and more conspicuous, that on frons and sides of face denser and composed of both silvery scale-like hairs and silvery hairs; front tibiae on the whole darker and the femora tending to be entirely black; wings with the discal cross vein tending to be distinctly much beyond middle of discoidal cell and the upper vein of first posterior cell distinctly very much less than 3 times as long as that part of it between first posterior and second submarginal cells . . . . . 36.
36. (39) Edge of metapleural plate, sides of abdominal segments 1–5 dark or at least indistinctly and obscurely yellowish; pubescence on occiput, front part and sides of thorax and mesopleuron slightly longer but sparser; head more distinctly spherical, with the eyes comparatively broader lower down and the first antennal joints more slender and with sparser and shorter hairs; tarsi with at least the bases of middle and hind ones more broadly yellowish; body less bulky . . . . . 37.
37. (38) Antennal joint 1 only about 3 times as long as joint 2, the hairs on them shorter and sparser; femora and tibiae more slender; pubescence on body less dense and slightly shorter; wings with the second submarginal cell, across apical part, subequal to or even less than length of lower vein . . . . . *transvaalensis* n. sp. (p. 891).
38. (37) Antennal joint 1 slightly more than 3, quite 3½, times as long as joint 2, the hairs on them slightly longer and denser; femora and tibiae distinctly stouter; second submarginal cell, across apical part, distinctly broader than length of lower vein . . *furcifer* n. sp. (p. 899).
39. (36) Edge of metapleural plate, sides of abdominal segment 1 and sides below of segments 2–5 and hind margins of venter broadly yellowish red or yellowish; pubescence on body above slightly shorter but very dense and conspicuous; head more elongate from above to below, the eyes more elongate and the first antennal joints distinctly stouter and with denser and longer hairs; tarsi on the whole much darker, almost entirely dark; body more compact and bulky . . *niveus* n. sp. (p. 904).
40. (35) Antennal joint 1 distinctly shorter, less than 3 times, only about 2½ times as long as 2 and with shorter hairs; interocular space on vertex slightly narrower, only about 2 times as broad as tubercle; pubescence on body shorter, sparser and less shaggy, that on head, thorax and venter comparatively shorter, that on sides of face composed practically only of flattened, silvery white scaling; front tibiae paler and yellowish like the others and the apices of the femora tending to be also yellowish; wings with the discal cross vein tending to be much nearer, or at, middle of discoidal cell and the upper vein of first posterior cell tending to be 3, or nearly 3, times as long as that part of it between first posterior and second submarginal cells . . . . *turneri* n. sp. (p. 893).

41. (34) Wings only greyish hyaline, vitreous hyaline, or only with a very feeble cinereous or yellowish tinge, without any distinct milky whitish tint, with the veins on the whole darker . . . . . 42.
42. (47) Face in front with a distinct triangular ivory yellowish or yellowish spot; wings with the second submarginal cell tending to be as long along lower vein as broad apically or even shorter than broad apically and with the apical cross vein of discoidal cell usually distinctly, even if only slightly, S-curved; antennal joint 1 longer usually at least 3 times as long as 2; tibiae usually paler and more yellowish and undersurfaces of front ones usually darkened; lobes of abdominal segment 8 below usually broader and less produced . . . . . 43.
43. (46) Antennae with joint 1 slightly longer, quite 3 times as long as 2; wings with the discal cross vein distinctly or much beyond middle of discoidal cell, the veins darker and the wings themselves without a slight yellowish tinge; proboscis slightly longer, 2–3 mm. long; slightly larger forms, about 3–5 mm. long, with a wing-length of about 4–5½ mm. . . 44.
44. (45) Body distinctly more bulky and also larger, about 4½–5 mm. and with a wing-length of about 4½–5½ mm.; scutellum apparently broader and flatter, less inflated in appearance; wings with the veins more yellowish; pubescence on the whole denser, the scaling on body below also denser; interocular space on vertex distinctly narrower and not or scarcely 2 times as broad as tubercle, the frons thus more rapidly narrowing basally; femora usually with more yellowish or brownish apically; genital armature (text-fig. 273, *a*) . . . *maculifacies* n. sp. (p. 895).
45. (44) Body distinctly smaller, narrower, more slender and less bulky, about 3–4 mm. long and with a wing-length of about 4–4⅓ mm.; scutellum distinctly narrower and distinctly more tumid or inflated; wings with the veins darker especially towards the apical parts; pubescence on the whole less dense; interocular space on vertex distinctly broader, quite 2 times as broad as broadish tubercle, the frons thus distinctly less narrowed basally; femora on the whole darker and less yellowish apically; genital armature (text-fig. 273, *b*) . *gariepinus* n. sp. (p. 897).
46. (43) Antennae with joint 1 tending to be slightly shorter, scarcely 3, or only about 2½, times as long as 2; wings with the discal cross vein at, or at about, the middle of discoidal cell, with the veins distinctly paler yellowish, the wings also with a very faint yellowish tinge in certain lights; proboscis slightly shorter, only about 2 mm. long; slightly smaller and more delicate form, not longer than 3½ mm. and with a wing-length of not longer than 3½ mm. . . . . *parvus* n. sp. (p. 905).
47. (42) Face in front without a distinct yellowish or ivory yellowish macula; wings with the second submarginal cell distinctly much longer along its lower vein than broad apically and with the apical cross vein of discoidal cell almost straight or at least straighter; antennal joint 1 distinctly shorter than 3 times or even 2½ times as long as 2; tibiae more brownish yellow and undersurfaces of front ones not darkened; lobes of abdominal segment 8 below distinctly longer and more produced *delicatus* n. sp. (p. 907).
48. (13) Legs with the middle and hind femora entirely or predominantly pale yellowish, pale brownish or ochreous yellow or at least with the apical

parts or halves yellowish or more broadly so; sides of abdominal segments below and hind margins of venter in ♂♂ much more broadly or more distinctly yellowish or pallid; edge of metapleural plate, above hind coxae, sides of abdominal segment 1 and sides of some of the other segments distinctly more broadly and more conspicuously or extensively yellowish or yellowish red in ♀♀; known ♀♀ usually with more golden scaling above . . . . . ♂♂ (49). ♀♀ (57).

49. (52) Eyes in actual contact for a shorter distance, less than, or not very much more than, 3 times as long as tubercle, with the line of contact not very deeply or markedly impressed; ocellar tubercle less pimple-like and prominent; face less convexly prominent; pubescence longer, denser, more shaggy, especially on occiput and front part of thorax and venter . . . . . 50.

50. (51) Antennal joint 1 distinctly shorter, less than 3 times as long as joint 2; eyes in actual contact above for a distinctly longer distance, about 3, or even a little more, times as long as tubercle; thorax and scutellum above with the fine scaling more brassy or very pale golden; second submarginal cell not very much broader apically than second posterior cell and the wings less markedly milky whitish; hypopygium (text-fig. 278) with the apical processes of basal part shorter and less compressed, and the apically projecting prongs of central guide also shorter

peringueyi n. sp. (p. 907).

51. (50) Antennal joint 1 distinctly much longer, slightly more than 3 times as long as joint 2; eyes in actual contact above for a shorter distance, less than 3 times as long as tubercle; thorax and scutellum above with the fine scaling (where present) more silvery whitish; second submarginal cell distinctly much broader apically than second posterior cell and wings distinctly more milky whitish; hypopygium with the apical processes of basal part longer and more flattened and the apically projecting prongs of central guide distinctly longer

lactipennis n. sp. (p. 909).

52. (49) Eyes in actual contact above for a distinctly longer distance, 4 or more times as long as tubercle, with the line of contact usually very markedly impressed; ocellar tubercle distinctly more elevated and pimple-like; face appearing more convexly prominent, owing to the more impressed line of contact and depressed frons; pubescence on the whole distinctly sparser, less dense and slightly shorter, even though more abundant on occiput, front part of thorax and venter than on rest of body . . 53.

53. (54) Wings distinctly tinted more subopaquely milky whitish; pubescence on occiput, front part and sides of thorax and mesopleuron distinctly denser and entirely white or frosty white, that on sides of face more extensive and composed of silvery flattened scale-like hairs and hairs, with the fine scaling on abdomen above at least tending to be paler and more silvery whitish or very pale brassy yellowish; antennal joint 3 more distinctly rapidly attenuated towards apex; front part of line of contact at base of frons slightly more deeply depressed; thorax (from side) more broadly and roundly convex; hypopygium (text-fig. 279) with 2 longish apical processes on each side of basal part and without a

long apical process to the ramus on each side and with the prongs of central guide broadened spear-blade like apically
psammobates n. sp. (p. 910).

54. (53) Wings more hyaline, not or scarcely tinted milky whitish; pubescence on occiput, front part of thorax and mesopleuron on the whole shorter and distinctly less dense and on body above with a slight straw-coloured to even distinctly yellowish tint, that on sides of face less extensive and composed mainly of flattened silvery scaling, with the fine scaling above, and on abdomen especially, tending to be more deeply or distinctly brassy or golden yellow; antennal joint 3 more gradually attenuated apically; front part of line of contact or base of frons scarcely or not markedly impressed; thorax (from side) more semicircularly rounded and more humped; hypopygium (text-fig. 280) with only one distinct bluntish process on each side apically of basal part and with a long apical process to each ramus and with the prongs of central guide not broadened apically . . . . . 55.

55. (56) Pubescence on body above and on antennal joint 1 paler, more dull whitish to straw-coloured whitish; upper vein of second submarginal cell tending to be less bent upwards at apex . . *nomadicus* n. sp. (p. 912).

56. (55) Pubescence above and to some extent that on antennal joints above distinctly more yellowish or sericeous yellowish or at least with a distinct faint yellowish or even brownish tint in certain lights; upper vein of second submarginal cell tending to be more bent upwards at apex . . . . . *nomadicus* var. *breyeri* n. (p. 914).

57. (58) Interocular space on vertex markedly broad, apparently nearly 3 times as broad as ocellar tubercle, the frons thus broad, its sides very nearly subparallel; wings with the veins darker and very dark blackish brown; the ivory yellowish on genae extending round upper rim of buccal cavity
latifrons n. sp. (p. 915).

58. (57) Interocular space on vertex distinctly narrower, only about 2, or even less, times as broad as ocellar tubercle, the frons thus narrower especially towards base, its sides distinctly and more markedly converging towards base; wings with the veins paler, either yellowish or when dark not very dark blackish brown; the ivory yellowish on genae not extending round upper rim of buccal cavity and if there is yellow on face it is in form of a detached medial spot . . . . . 59.

59. (60) Antennal joint 1 much longer, much more than 3 times, nearly 4 times as long as joint 2; wings more markedly tinted subopaquely whitish, with the veins much paler and the second submarginal cell distinctly much broader apically than the second posterior cell; extreme sides of abdominal segments and even the hind margins laterally more conspicuously and broadly reddish yellow . . *lactipennis* n. sp. (p. 909).

60. (59) Antennal joint 1 distinctly much shorter, only about 3, or even less, times as long as 2; wings much less tinted subopaquely whitish, the veins on the whole less pallid and the second submarginal cell subequal to or only slightly broader apically than second posterior cell; extreme sides of abdomen less broadly and conspicuously reddish or yellowish
61.

61. (62) Wings more distinctly, though faintly, tinted milky whitish and veins

often paler; antennal joint 1 slightly shorter, less than 3 times as long as 2; pubescence on the whole whiter and the fine scaling on hind part of thorax and on scutellum paler, less deep brassy or golden and more silvery; hind and middle femora becoming more brownish in basal half *peringueyi* n. sp. (p. 907).

62. (61) Wings more vitreous hyaline or glassy hyaline, scarcely or only very indistinctly tinted milky whitish and veins usually darker; antennal joint 1 distinctly longer, at least about 3 times as long as 2; pubescence on body above, especially on occiput, thorax, sides of thorax or even on abdomen inclining to become straw-coloured or even slightly yellowish and, if not, the fine scaling at base of thorax and on scutellum and on abdomen above distinctly more yellowish, brassy to deep golden yellowish; hind and middle femora on the whole tending to be entirely pale yellowish or reddish yellow . . . . . 63.

63. (70) Interocular space on vertex slightly broader, at least 2 times as broad as tubercle, the frons on the whole broader, less rapidly narrowed to vertex and slightly more convex in front of tubercle; face without a distinct ivory whitish or yellowish macula apically; pubescence on body above tending to be tinted slightly straw-coloured or even slightly yellowish even if only on occiput and ocellar tubercle; middle and hind femora usually very pale yellowish; upper vein of second submarginal cell slightly more bent upwards at apex . . . . . 64.

64. (67) Pubescence paler, that on ocellar tubercle, occiput and on thorax paler and more whitish, the fine scaling on body above also paler and more pale brassy yellowish, that on thorax in front more silvery; interocular space appearing slightly narrower, scarcely 2 times as broad as tubercle 65.

65. (66) Front femora distinctly more yellowish or pale yellowish brown apically; edge of metapleural plate, sides of abdominal segments 1–5 and hind margins of ventral segments distinctly more broadly and conspicuously yellowish; wings slightly more greyish or subopaquely whitish especially towards base, the upper vein of second submarginal cell more bent upwards at apex; pubescence on front part of body slightly longer; proboscis slightly longer and about 4 mm. long *psammobates* n. sp. (p. 912).

66. (65) Front femora entirely dark or black; edge of metapleural plate and sides of abdomen much less conspicuously or broadly yellowish; wings distinctly clearer and more hyaline, the upper vein of second submarginal cell less distinctly bent upwards at apex; pubescence on the whole sparser and shorter; proboscis usually shorter and less than 4 mm. long . . . . . *nomadicus* n. sp. (p. 912).

67. (64) Pubescence on ocellar tubercle, occiput, thorax above and even on abdomen above at base tending to be more distinctly yellowish to yellow, the fine scaling above denser and distinctly deeper golden; interocular space apparently slightly broader and tending to be at least 2 times as broad as tubercle . . . . . 68.

68. (69) Pubescence on thorax above, scutellum and abdomen distinctly less dense, the disc of thorax tending to be bare, the scaling on body and abdomen less dense; legs more slender and middle femora and even

hind ones tending to be darkened at bases; antennal joint 1 more slender; wings with the veins paler; smaller and less bulky form, less than 7 mm. long and with a wing-length of less than 8 mm.

nomadicus var. *breyeri* n. (p. 914).

69. (68) Pubescence on thorax, scutellum and abdomen distinctly very much denser, the short erect hairs much denser on disc of thorax, with the deep golden scaling on body above very much denser, especially so on abdomen; legs comparatively much stouter, and the middle and hind femora entirely yellow; antennal joint 1 stouter; wings with the veins on the whole darker; larger and distinctly more bulky form, about 7 mm. long and with a wing-length of about 8 mm.

bechuanus Hesse (p. 916).

70. (63) Interocular space on vertex apparently slightly narrower, scarcely, or even slightly less than, 2 times as broad as tubercle, the frons slightly longer, narrower, more rapidly narrowed to vertex and on the whole planer and not so distinctly raised in front of tubercle; face with a distinct ivory whitish or yellowish macula apically; pubescence on body above entirely white or frosty white; middle and hind femora more pale brownish yellow, tending to be more darkened towards bases, upper vein of second submarginal cell less bent upwards at apex . . . 71.

71. (74) Antennae with joint 1 slightly longer, quite 3 times as long as 2; wings with the discal cross vein distinctly or much beyond middle of discoidal cell, the veins darker, the wings themselves without a slight yellowish tinge; proboscis slightly longer, 2–3 mm. long; slightly larger forms about 3–5 mm. long, with a wing-length of about 4–5½ mm. . . . 72.

72. (73) Body distinctly more bulky and also larger, about 4½–5 mm. long and with a wing-length of about 4½–5½ mm.; scutellum apparently broader and flatter, less inflated in appearance; wings with the veins more yellowish; pubescence on the whole denser, the scaling on body below also denser; interocular space on vertex distinctly narrower and not or scarcely 2 times as broad as tubercle, the frons thus more rapidly narrowed basally; genital armature (text-fig. 273, *a*)

maculifacies n. sp. (p. 895).

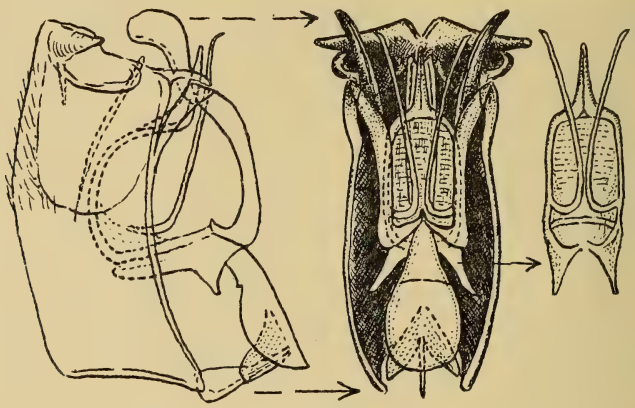
73. (72) Body distinctly smaller, narrower, more slender and less bulky, about 3–4 mm. long and with a wing-length of about 4–4⅓ mm.; scutellum distinctly narrower and distinctly more tumid or inflated; wings with the veins darker especially towards the apical parts; pubescence on the whole less dense; interocular space on vertex distinctly broader and quite 2 times as broad as broadish tubercle, the frons thus distinctly less narrowed basally; genital armature (text-fig. 273, *b*)

gariepinus n. sp. (p. 897).

74. (71) Antennae with joint 1 tending to be slightly shorter, scarcely 3, or only about 2½, times as long as 2; wings with the discal cross vein at, or at about, the middle of discoidal cell, with the veins distinctly more yellowish, the wings also with a very faint yellowish tinge in certain lights; proboscis slightly shorter, only about 2 mm. long; slightly smaller and more delicate form, not longer than 3½ mm. long and with a wing-length of not longer than 3½ mm. . *parvus* n. sp. (p. 905).

3 ♂♂ 5 ♀♀ *G. nigerrimus* n. sp.

Body, including entire legs, black; genae also entirely dull and black, the front part of face sometimes slightly pallid; the integument of frons, face, head below, a central band on thorax above in front half, the sides and pleurae, sides of abdomen and the venter with greyish white bloom; pubescence with the longish erect hairs on head and body above and below frosty or silvery whitish, the fine and depressed scale-like hairs or scaling, densely on frons, along hind margins of eyes, on thorax above, on the pleurae, on abdomen above



TEXT-FIG. 265.—Side and ventral (dorsal) views of hypopygium and of aedeagal complex of ♂ *Geron nigerrimus* n. sp.

and more densely on venter and legs silvery whitish; wings with a faint milky whitish tint, with the veins very dark blackish brown to black, the main veins, even at extreme base of wing, being blackish, with the second submarginal cell distinctly longer along its lower vein than broad apically, the veins of the cell sometimes subparallel, with the discal cross vein distinctly beyond middle of discoidal cell and vein separating discoidal cell and second posterior cell sometimes only feebly S-curved, with the squamae sometimes dark-bordered; halteres with the ivory whitish knobs distinctly blackened above in ♂♂ at least. *Head* with the eyes in actual contact above in ♂♂ for a distance at least 3 times as long as ocellar tubercle (front view) and with the slightly coarser facets in upper part imperceptibly merging into finer lower ones, with the interocular space on vertex in ♀♀ about 2 times as broad as tubercle or subequal to length of antennal joint 1; frons gradually widening anteriorly in ♀♀, slightly transversely depressed just behind antennae, small and triangular in ♂♂;

antennae with joint 1 about 3 times as long as joint 2, with entirely white hairs, those below in ♂♂ being slightly longer, with joint 3 gradually tapering to a point; face slightly ridge-like centrally and not very prominent anteriorly; proboscis slender, about $1\frac{2}{3}$–2 mm. long; palps short and only visible at base of proboscis especially in ♀♀. *Thorax* almost hemispherically convex above, giving this small species a markedly humped appearance. *Legs* slender, with the spicules on tibiae, and especially hind ones, more feeble and more poorly developed than in many other species. *Hypopygium* (text-fig. 265) with the apical process or lobe on each side of basal part produced or directed outwards horizontally, with the lateral ramus on each side, connecting the apical part of basal part to central guide, produced apically into a flattened, somewhat racket-shaped, lobe; aedeagus curved (*see* left-hand figure) and having on its ventral side an apically directed stylet-like process (*see* left-hand figure and ventral view of aedeagus on extreme right); dorsal to aedeagus (*see* left-hand figure) there is a flattened, strap-like strand on each side attached apically and together with its partner forming the dorsal guide to aedeagus (shown in dotted outline and from side above aedeagus). This species and the following three species are peculiar in that the aedeagus has stylet-like or prong-like processes ventral to it and not dorsal.

Types in the British Museum, paratypes in the Imperial Institute and South African Museum.

Length of body: about 4–5 mm.

Length of wing: about 4–5 mm.

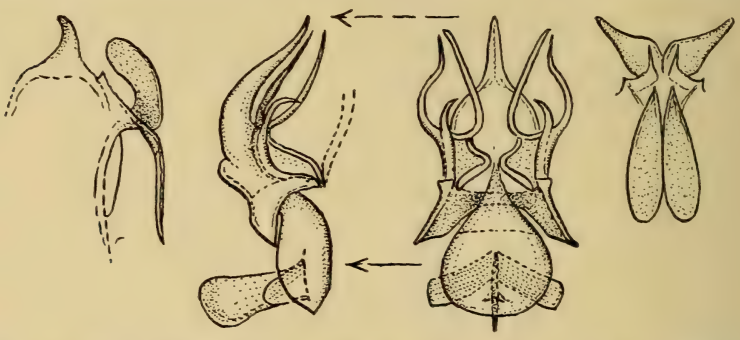
Locality.—S.-Western Cape Province: Cape Town to Cape Point (Simmonds, Nov. and Dec. 1930) (Types). S.-Western Karoo: Michell's Pass (Simmonds, 1–5/12/30). Namaqualand: Kamieskroon (Mus. Esp., Nov. 1936); Nieuwoudtville (Ogilvie, 18–22/11/31).

Easily recognised by the entire black legs and the very dark veins of the wings.

1 ♂ 3 ♀♀ *G. anceps* n. sp.

Externally there appear to be no specific characters to distinguish these specimens from *nigerrimus*, but as the ♂-hypopygium, however, differs in certain respects from that of the latter they have to be referred to a separate but very similar species. The only distinguishing characters appear to be that the wings are slightly more distinctly milky whitish, the knobs of the halteres in the ♂♂ are predominantly ivory whitish above, only the base or extreme base

above is darkened or blackish above whereas in the ♀♀ they are entirely ivory whitish as in ♀♀ of *nigerrimus*, the interocular space on vertex in ♀♀ are, however, distinctly a little broader than in *nigerrimus* and a little broader than 2 times as broad as ocellar tubercle or a little broader than length of first antennal joints, and the proboscis appears to be longer and about 2½ mm. The *hypopygium* of the ♂ (text-fig. 266, showing ventral view (middle right-hand figure) of aedeagal complex and aedeagus, a lateral view of the same (middle left-hand figure), the apical lobes of basal part (extreme right-hand figure) and lateral lobes and apically produced part of lateral ramus



Text-fig. 266.—Apical processes of basal part of hypopygium (left and right) and the side and ventral (dorsal) views of aedeagal complex of ♂ *Geron anceps* n. sp.

from a side view (extreme left)) is different in many respects from that of *nigerrimus* (cf. text-fig. 265) in that the apical lobes tend to be less horizontal and sometimes even slightly curved apically, the aedeagal complex has a slender curved apically directed spine on each side of aedeagus and another shorter one on each side near the base of the outer ones (*see* middle right-hand figure), the dorsal guides to aedeagal complex (shown on extreme right under apical lobes) are in form of elongate leaf-like structures. As in *nigerrimus*, there is a stylet-like apically directed process on each side ventral to the aedeagus.

Types in the South African Museum.

Length of body: about 4–5 mm.

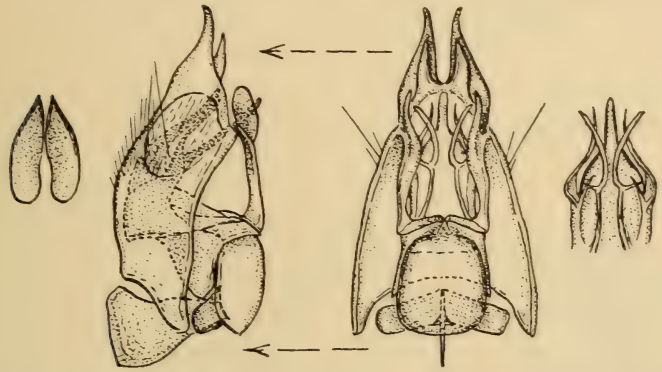
Length of wing: about 4–5 mm.

Locality.—Nieuwveld Karoo: Fraserburg Distr.; Teekloof (Mus. Staff, Nov. 1935) (Types); Beaufort West. Distr. (Mus. Staff, Nov. 1935).

This species seems to occur in the high-lying part of the Karoo above the escarpment.

1 ♂ *G. orthoperus* n. sp.

This single ♂-specimen is also superficially almost inseparable from *nigerrimus* and *anceps*, and unless the hypopygium is examined there appear to be practically no external differences. From both the ♂ of *nigerrimus* and *anceps* it appears to differ in having the eyes in contact above for a distinctly longer distance, much more than 3 times and nearly or about 5 times as long as ocellar tubercle, in



TEXT-FIG. 267.—Side and ventral (dorsal) views and separate parts of hypopygium of ♂ *Geron orthoperus* n. sp.

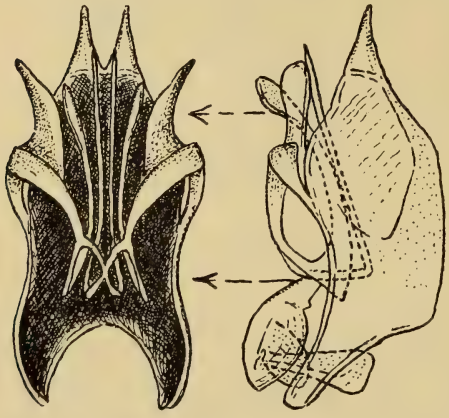
having the wings more vitreous hyaline, no distinct milky whitish tint being so apparent, and with their veins also more uniformly brownish and even more distinctly yellowish towards or at base. From *nigerrimus* it also differs in having the knobs of halteres predominantly ivory whitish above and below. The pubescence on occiput, front part and sides of thorax above, on abdomen and on coxae is also relatively longer and denser than in ♂♂ of *nigerrimus* and *anceps* and that on thorax in front discally above with a faint straw-coloured yellowish tint in certain lights. The *hypopygium* (text-fig. 267) resembles that of *anceps* in many respects, but the apical lobes of basal part are straight and there is also on each side ventrally at base of each apical lobe a long and prominent spine, much longer than that of *anceps*; aedeagal complex (figure on extreme right) much like that of *anceps* and the apically directed spines and processes very similar; the dorsal guide to aedeagal complex (shown on extreme left) also similar; the basal strut is larger. As in *nigerrimus* and *anceps*, it will be seen that the aedeagus has stylet-like processes ventral to it and not dorsal as in other species of *Geron*.

Type in the Imperial Institute.
Length of body: about 5 mm.
Length of wing: about 5 mm.
Length of proboscis: about $2\frac{2}{3}$ mm.
Locality.—S.-Western Karoo: Ceres (Mackie, 2/1932).

1 ♂ *G. munroi* n. sp.

This species is only represented in the collection by a single ♂-specimen, which differs in important features from the other species.

Body, including the entire genae, black; integument of face, sides of thorax, along a central line in front half of thorax, pleurae, sides of abdomen and venter with slaty grey bloom; legs with the coxae, trochanters and femora black, the middle and hind tibiae brownish, but the front ones even darker, with the basal parts of the tarsi yellowish brown, the rest of tarsi dark; pubescence sparse, but denser on occiput and abdomen and as in *nigerrimus* distinctly sparser and shorter than in the other species in this category, entirely frosty white, the scaling on body and legs silvery whitish, denser on sides of abdomen, venter and legs; wings very faintly, but distinctly, more subopaquely yellowish white or greyish and distinctly less milky whitish than in *nigerrimus*, with the veins pale yellowish brown throughout, even the extreme base being only slightly more yellowish, with the second submarginal cell distinctly much longer along lower vein than broad apically, the veins only gradually diverging, with the discal cross vein much beyond middle of discoidal cell, with the vein between discoidal and second posterior cells only very slightly S-curved, with the squamae more milky whitish and with a pallid hind border; halteres yellowish, with dark base and ivory whitish knobs. *Head* with the eyes only contiguous



Text-fig. 268.—Interior view and side view of hypopygium of ♂ *Geron munroi* n. sp.

above for a very short distance, only about as long as tubercle, the inner margins gradually diverging posteriorly on each side of tubercle and also anteriorly, the line of contiguity not impressed; frons longer and larger than in ♂♂ of other species, slightly depressed at base; face slightly raised centrally, its front part slightly convexly prominent above buccal cavity; antennae with joint 1 slender and only about 2 times as long as joint 2; proboscis slender, about 2 mm. long and palps short. *Hypopygium* (text-fig. 268) with the base of basal part rather produced on each side, with the apical process on each side of basal part directed apically and spine-like; ramus on each side, joining side of basal part to central guide, also produced into a "shoehorn-like" process; aedeagus apparently in form of 2 slender spine-like processes; central guide with the apically directed prong on each side broadened apically and ventral to aedeagus. The basal ladle-shaped part of aedeagal part has been left out in the left-hand figure but is shown in the right-hand one. In the case of *munroi* the apically directed stylet-like processes are also ventral to aedeagus as in the preceding species.

Type in the Transvaal Museum.

Length of body: about 4 mm.

Length of wing: about 4 mm.

Locality.—E. Cape Province: East London (Munro, 27/2/19).

1 ♀ *G. nigrifacies* n. sp.

Body, including entire genae, black; integument of body below, sides of abdomen and a central line on thorax above with slaty grey bloom; legs with the coxae, trochanters and femora black, the front tibiae almost black, the middle and hind ones more yellowish, only the apices being also blackish, the tarsi, excepting only the yellowish bases, black; lobe-like processes on sides below of segment 8 yellowish; pubescence comparatively long for the species in this category, denser than in other forms, slightly longer and denser on occiput, face, lower parts of genae, sides of abdomen, on venter, coxae and femora, silvery whitish, but with intermixed brownish hairs on disc of thorax, with the broader depressed scaling behind eyes (absent on sides of face) silvery whitish and the finer scaling and short pubescence on thorax, scutellum and abdomen above brassy yellowish, more whitish anteriorly on thorax, that on abdomen denser and arranged more transversely, that on venter and legs denser and broader and silvery white; wings feebly subopaque, with a slight whitish tint, more

evident basally, with the apical part of costal cell yellowish, with the veins very dark blackish brown, yellowish at base, but extreme base black again, even the hind border of squamae brownish, with the second submarginal cell only very slightly longer along lower vein than broad apically, the veins thus more rapidly diverging than in *niger-rimus* and *munroi*, with the discal cross vein slightly beyond middle of discoidal cell; halteres dirty yellowish, with dark base and ivory yellowish knobs. *Head* with the interocular space on vertex about 2 times as broad as tubercle; frons broad, slightly convex in ocellar region and transversely depressed anteriorly, with bristly hairs on each side; face comparatively broad, with fairly dense hairs on each side, scarcely prominent above buccal cavity; antennae with joint 1 fairly densely-haired, at least 3 times as long as joint 2; proboscis long, about 4 mm. long, with the palps short and confined to extreme base of proboscis.

Type in the British Museum.

Length of body: about 6½ mm.

Length of wing: about 6½ mm.

Locality.—South West Cape Province: Cape Town (Simmonds, 6/12/30).

Easily distinguished from species in the second category by the black genae, longer and more extensive hairs on sides of face (a much narrower central part without hairs), absence of closely adpressed scale-like pubescence on sides of face, down the genae and even on frons, etc.

G. nasutus Bezz.

(P. 114, The Bombyliidae of the Ethiopian Region, 1924.)

Bezzi's description is based on a single ♂-specimen from Mt. Mlanje in Nyasaland. The distinct, smooth, brilliantly shining and conically prominent face of this species at once distinguishes it from all other South Ethiopian species of *Geron*. A single, somewhat denuded, ♀-specimen from Kamanyab in the north western part of South West Africa belongs to this series and probably represents the undescribed ♀ of the above species.

Body black; genae ivory whitish; legs with the middle and hind femora and all the tibiae yellowish, the front tibiae, however, slightly more brownish and the tarsi dark; face smooth, brilliantly shining black, distinctly conically prominent and without silvery white pubescence or scaling on its sides or down the genae; pubescence on

body predominantly whitish, some bristly hairs on vertex and ocellar tubercle, however, more blackish brown, with the scaling on frons and as a dense tuft on each side of antennae, that behind eyes, on pleurae, venter and on legs silvery white and slightly broader, that on thorax above finer, whitish towards sides, becoming distinctly more yellowish or brassy discally and basally and also pale brassy on abdomen above. *Head* with the interocular space on vertex about 2 times as broad as tubercle, with joint 1 of the antennae at least 3 times as long as joint 2 and fine-haired, with the proboscis also about 3 mm. long, but the palps short (described as long for the ♂). *Wings* as described for the ♂, the veins, however, more brownish, only those at extreme base yellowish, with the second submarginal cell distinctly longer than in most of the species in the second category.

Type in the South African Museum.

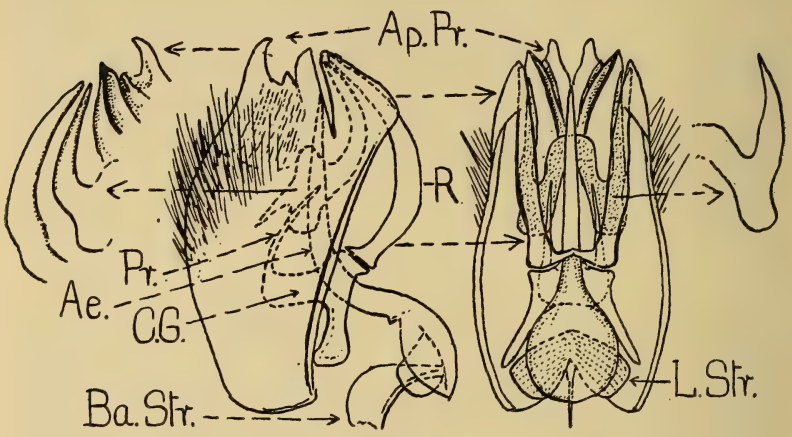
Length of body: about 6 mm.

Length of wing: about 6 mm.

4 ♂♂ 3 ♀♀ *G. transvaalensis* n. sp.

Body black, with the lower parts of body and an anterior central stripe on thorax sometimes covered with a slaty grey bloom especially in ♀♀; narrow hind margin of metapleural plate above hind coxae, the narrow hind margin of sides of abdominal segment 1 and extreme sides below of some of the other segments slightly or obscurely reddish; middle and hind tibiae and basal parts of middle and hind tarsi pale yellowish brown or yellowish, the front tibiae on the whole dark, and the apices of the others also darkened, and all the spicules on tibiae and tarsi black; ventral lobes below on segment 8, and the genital lobes in ♀♀ also yellowish; pubescence entirely white and with silky gleams, somewhat long and shaggy, longer and denser in ♂♂, denser on occiput, front part of thorax, mesopleurae, sides of abdomen and venter in both sexes, but much more so in ♂♂, that on coxae also conspicuous, with the hairs on femora in ♂♂ more developed, with the pubescence on sides of face in form of dense silvery scaling and silvery white long hairs, with silvery hairs on frons in ♀♀ as well as silvery scaling, with the fine scaling on body above silvery to very pale brassy in ♀♀, sparser on thorax and almost absent on these sites in ♂♂, denser on abdomen and also much denser here in ♀♀, very dense and silvery white on venter in both sexes where the scaling is also more concentrated across hind margins of segments, those on pleurae sparser but denser again on coxae and femora; wings glassy but with a distinct subopaque milky

whitish tint, more evident basally and on alula, with the veins pale yellowish brown, paler basally and slightly more brownish in costal part, with the discal cross vein distinctly beyond middle of discoidal cell, and with the squamae subopaquely whitish, yellowish-margined and fringed with whitish hairs; halteres with ivory whitish or yellowish knobs and brownish bases. *Head* with the eyes in actual contact in ♂♂ above for a distance about 4, or a little more, times as long as tubercle (front view), with the line of contact impressed, with the



Text-fig. 269.—Side and ventral (dorsal) views of hypopygium and some of its parts of ♂ *Geron transvaalensis* n. sp.

interocular space in ♀♀ quite 2 times as broad as tubercle; eyes in ♂♂ with the upper facets coarser and more coarse towards line of contact, almost imperceptibly merging into finer ones below; ocellar tubercle in ♂♂ more raised and more prominent than in ♀♀; frons in ♀♀ comparatively broad, gradually becoming broader apically, transversely depressed anteriorly as in all the species and very slightly convex medially in front of tubercle, small, triangular and depressed in ♂♂; face appearing slightly more convex in ♂♂; antennae with joint 1 about 3, or a little more, times as long as 2, with 3 gradually narrowed to a sharp point, quite 1½ times as long as 1 and 2 combined; proboscis about 3–3½ mm. long. *Hypopygium* of ♂ (text-fig. 269) with apically directed bristly hairs on basal part of which one on each side is stouter and more spine-like, with the basal part produced apically on each side into an upper dentate process (Ap.Pr.), a smaller medial process and a stoutish lower process, the latter two excavated on the inner side (see enlargement to left of left-hand figure); apical

part on each side ventrally of basal part also conically produced and lodging the apical parts of ramus (R.) and prongs of guide to the prongs (Pr.) from central guide (C.G.) and aedeagus (Ae.); aedeagus (Ae.) almost straight from central guide (C.G.); central guide (C.G.) with a comparatively short apically directed prong (Pr.) on each side and a comparatively long basally directed lobe-like process on each side; guide to aedeagus and prongs also produced on each side into a long prong-like apical process; basal strut (Ba.Str.) to basal part of aedeagus curved and shaped as in figure (side view).

Holotype in the Transvaal Museum, allotype in the South African Museum.

Length of body: about 5–5½ mm.

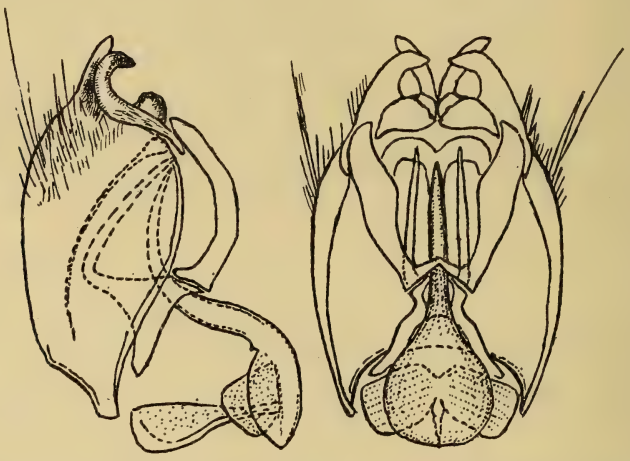
Length of wing: 5–5½ mm.

Locality.—Transvaal: Pretoria (Munro, 30/12/13) (Holotype); (13/12/14) (Allotype); (7/12/15, 17/12/13 and 2/12/15) (Paratypes).

1 ♂ 2 ♀♀ *G. turneri* n. sp.

Body black, with the sides of head, front part and sides in front of thorax as well as an abbreviated central line on thorax in front and the lower parts of body covered with a greyish or pale slaty grey bloom; legs with the femora very dark blackish brown, their extreme apices more yellowish, all the tibiae yellowish and the bases of the tarsi also yellowish, with the front tibiae slightly darkened below and apically and the front tarsi almost entirely dark; posterior ventral lobes and genital lobes in ♀♀ yellowish; pubescence entirely gleaming silvery whitish, not very dense, much longer in ♂, denser and longer on occiput, front and sides of thorax, on head below, mesopleurae, sides of abdomen and venter and on the coxae in both sexes, that on sides of face in form of silvery white, dense, flattened, scale-like hairs only, with fine, sparse, pale brassy yellowish scaling on thorax and scutellum above in ♀♀, more silvery ones on abdomen above in both sexes, with the denser, broader scales on sides of head, frons in ♀♀, pleural parts, coxae and venter in both sexes gleaming silvery white, those on middle parts of pleurae almost wanting, those on legs dense and silvery white, with the scaling on abdomen above more concentrated transversely across hind margins, especially in ♀♀; wings glassy, but with a distinct, though faint, subopaque milky whitish tint, more evident towards base, the veins pale yellowish brown, paler at base, but more brownish or brown towards apex, with the discal cross vein a little, or even much, beyond middle

of discoidal cell, with the upper vein of first posterior cell quite or very nearly 3 times as long as part of this vein separating second submarginal and first posterior cells, the second submarginal cell also much broader apically than long along its lower vein, with the squamae milky whitish and fringed with white hairs; halteres with ivory whitish to almost white knobs. *Head* with the eyes in actual contact above in ♂ for a distance about, or nearly, 4 times as long as tubercle (front view), with the interocular space on vertex in ♀♀



Text-fig. 270.—Side and ventral (dorsal) views of hypopygium of ♂ *Geron turneri* n. sp.

about 2 times as broad as tubercle; frons in ♀♀ rather more rapidly narrowed towards vertex than in *transvaalensis*, with only a few hairs on each side but much scaling; antennae with joint 1 about $2\frac{1}{2}$ times as long as joint 2; proboscis slender, about $2\frac{1}{2}$–3 mm. long. *Hypopygium* of ♂ (text-fig. 270) with the basal part ending apically on each side in an elongate process and an inwardly directed or curved claw-like process as well as a knob-like process on each side at bases of the other processes; aedeagus slightly curved; central guide to aedeagus produced basally into a lobe-like process on each side, and an apically directed prong.

Types in the British Museum.

Length of body: about 4–$4\frac{1}{2}$ mm.

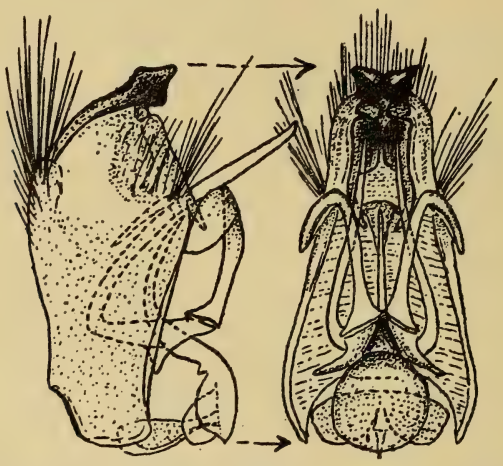
Length of wing: about $3\frac{2}{3}$–4 mm.

Locality.—S. Karoo: Worcester (Turner, Dec. 1933).

1 ♂ 5 ♀♀ *G. maculifacies* n. sp.

Body black, with the body below and an anterior central stripe on thorax covered with greyish white bloom; legs with the femora very dark blackish brown to black, their apices more sienna brown or reddish brown, with the tibiae and basal parts of tarsi yellowish, the front tibiae sometimes darkened or at least dark along lower surface; hind margin of metapleural plate, sides of abdominal segment 1 and sides of some of the other segments yellowish, especially in ♀♀; ventral lobes of segment 8 in ♀♀ and the genital lobes also yellowish; a central apical spot or stripe on face, especially in ♀♀, ivory whitish or yellowish like the genae; pubescence comparatively short in ♂, much shorter in ♀♀, also denser in ♂, entirely white in both sexes, that on sides of face composed of flattened, scale-like silvery hairs, with the fine scaling on thorax, scutellum and abdomen above denser in ♀♀, paler in ♂, but deep brassy to golden yellowish in ♀♀, with the broader flattened ones on body below denser and silvery whitish in both sexes, very dense behind eyes, on mesopleuron, coxae, legs and venter; wings glassy hyaline, not tinted milky whitish but very faintly subopaquely yellowish white at extreme base, the veins pale brownish to brown, becoming very pale yellowish at bases and darker along first longitudinal vein and costal part, with the upper vein of second submarginal cell scarcely or only very slightly bent upwards at its end, the second submarginal cell about as broad or slightly broader apically than long along its lower vein, with the distance between second submarginal cell and discal cross vein thus markedly long, with the discal cross vein well beyond middle of discoidal cell, with the squamae slightly opaquely whitish and fringed with white; halteres with the knobs ivory whitish to very pale lemon yellowish. *Head* with the impressed line of contact of eyes above in ♂ a little more than 5 times as long as tubercle, with the interocular space on vertex in ♀♀ comparatively narrow in comparison with other species, only or scarcely 2 times as broad as tubercle; ocellar tubercle in ♂ rather prominent and pimple-like; frons in ♀♀ rather long and narrow, fairly rapidly narrowed towards vertex, more plain above than in other species, no very distinct convexity being visible in front of tubercle and the transverse depression in front apparently shallower; antennae with joint 1 about 3, or even less, times as long as 2; face slightly more convexly prominent in front than in other species in this category; proboscis fairly long, about 2½–3 mm. long. *Hypopygium* of ♂ (text-fig. 271)

with somewhat long and conspicuous bristly hairs on dorsum and sides of basal part, there being a conspicuous patch on each side where ramus joins the basal part, with only a single pair of well-developed apical processes, the subsidiary process at base of these small and inconspicuous; aedeagus shortish, but the apically directed prongs of central guide, on each side of it, long and projecting. Genital armature of ♀ (text-fig. 273, *a*) is under the produced lobes of sternite 8.



Text-fig. 271.—Side and ventral (dorsal) views of hypopygium of ♂ *Geron maculifacies* n. sp.

Types in the British Museum.

Length of body: about 4½–5 mm.

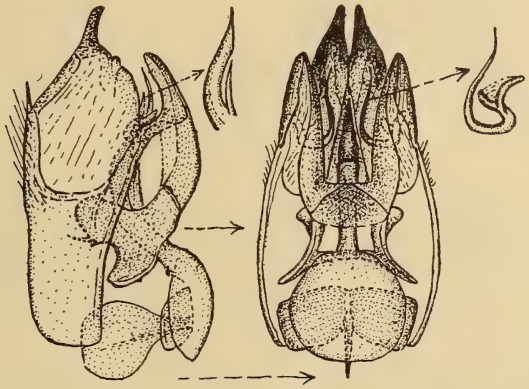
Length of wing: about 4½–5½ mm.

Locality.—S.W. Africa: Great Namaqualand; Aus (Turner, Dec. 1929) (Types); Damaraland; Otjituo (Tucker, Jan. 1920). Natal: Durban (Muir, 1905) (Imp. Institute).

This species appears to be slightly variable, the middle and hind femora in some ♀♀ tending to be entirely yellowish. The species is easily recognised by the ivory whitish or yellowish spot on face in ♀♀, the very roundly humped thorax, the almost glassy hyaline wings, and the comparatively narrow frons and vertex in ♀♀. The denuded ♀ from Natal, though having yellowish middle and hind femora, agrees in other respects with the ♀-allotype and paratypes and may also be considered as a form of *maculifacies*.

2 ♂♂ 4 ♀♀ *G. gariepinus* n. sp.

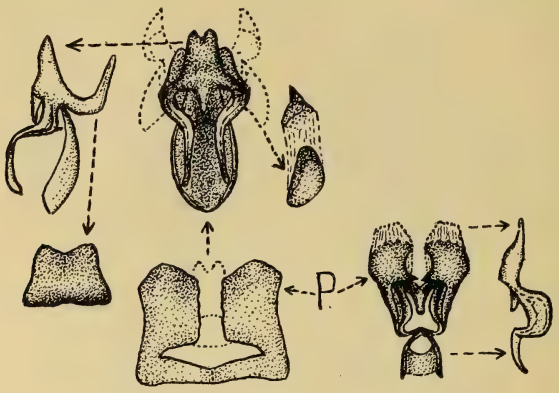
Body black; genae and a triangular spot on face in front ivory yellowish; hind margin or edge of metapleural plate, sides of tergite 1, and extreme sides of the other tergites below and genital segment below in ♀♀ yellowish or reddish, with the extreme sides of tergites below in ♂♂ sometimes obscurely yellowish; legs with the femora predominantly black in both sexes, but the apical parts in ♀♀ tending to be more brownish and the hind ones in some ♀♀ even tending to be



TEXT-FIG. 272.—Side and ventral (dorsal) views of hypopygium of ♂ of *Geron gariepinus* n. sp.

brownish or reddish brown, with the tibiae and basal parts or basal halves of the tarsi yellowish brown or reddish yellow in both sexes, the undersurfaces of front tibiae usually slightly darkened; pubescence predominantly sericeous whitish, that on occiput and thorax above in ♀♀ especially in front with a distinct yellowish to brownish sheen, that on body below in both sexes entirely white, with the pubescence on sides of face silvery whitish and composed of flattened scales, with the flattened scaling behind eyes on each side and on body below and on legs silvery whitish, that on disc of thorax in ♀♀ more yellowish, gleaming more brassy yellowish; wings glassy hyaline, iridescent, showing a very feeble milky whitish tint in certain lights, with the veins dark brownish, becoming darker towards apical parts and distinctly yellowish towards base and at base of wings, with the discal cross vein just beyond middle of discoidal cell, with the second submarginal cell broadish apically, the breadth subequal to length of lower vein, with the squamae subopaquely

whitish and fringed with white; halteres whitish, with whitish knobs in both sexes. *Head* with the eyes in ♂♂ in contact above for a distance about 4 or 5 times as long as ocellar tubercle (in front), the line of contact somewhat impressed, with the interocular space on vertex in ♀♀ about 2 times as broad as tubercle; antennae with joint 1 quite 3, or a little more, times as long as 2; proboscis about 2–2½ mm. long. *Hypopygium* of ♂ (text-fig. 272) differs from that of the preceding species in having the apical processes of basal part directed



Text-fig. 273.—(*a*) Parts of genital armature of ♀ *Geron maculifacies* n. sp. (*b*) Parts of genital armature of ♀ *Geron gariepinus* n. sp.

apically and slender, in having the ramus on each side prominently produced apically, a much shorter aedeagus, etc.

Types in the South African Museum.

Length of body: about 3–4 mm.

Length of wing: about 4–4⅓ mm.

Locality.—Namaqualand: Little Bushmanland; Goodhouse (Mus. Exp., Nov. 1936) (Types). S.W. Africa: Great Namaqualand; Aiais on the Great Fish River (Mus. Exp., Nov. 1936).

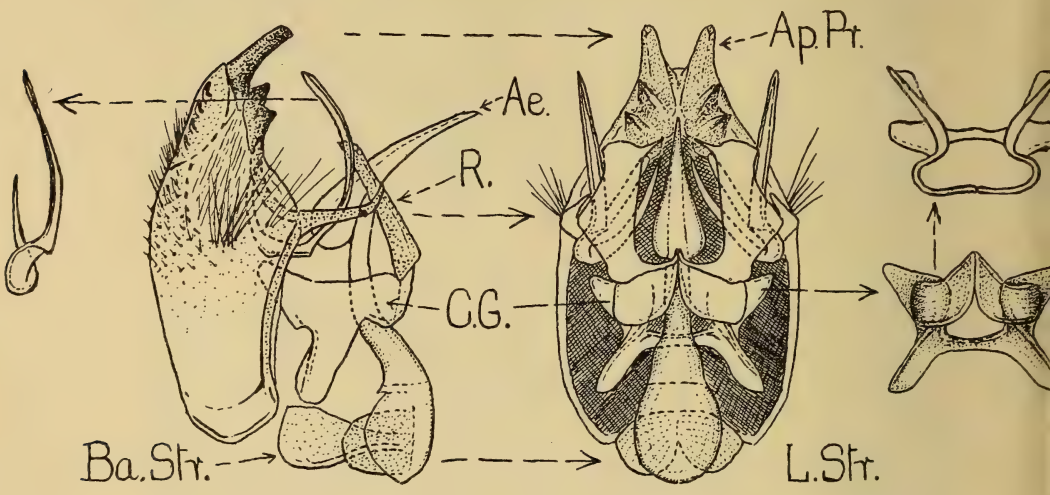
This species is very near *maculifacies*, from which it differs in having distinctly darker veins in the wings, relatively broader interocular space in ♀♀, somewhat narrower and more tumid or inflated scutellum, somewhat smaller, narrower and less bulky body, slightly shorter wings and entirely different type of ♂-hypopygium (cf. text-figs. 271 and 272). The genital armature of the ♀ (text-fig. 273, *b*) is also entirely different. Both the structures of *maculifacies* and *gariepinus* (text-fig. 273, *a* and *b*) are drawn for comparison. When the apical part of the abdomen of a ♀-*maculifacies* is boiled in a weak solution

of NaOH and dissected it is found that just under the produced lobes of the eighth segment below on venter there is a modified sternite or plate (P.), consisting of 2 parts the bases of which are united (*see* figure *a*) and below it (all from a ventral view) there is a peculiar structure (shown just above it in text-fig. 273, *a*, and also in side view). The last tergite (not shown) covers it dorsally and its position is also shown in dotted outline in the lower figure (*a*) just below the plate. Connected with it on the sides are certain sclerites (shown in dotted outlines and to right), which are also probably reduced terminal abdominal segments. When the abdomen of a ♀ of *gariepinus* is similarly treated there is below the produced lobes of segment 8 on venter and viewed from a ventral view a plate (P.) and attendant structures (text-fig. 273, *b*, ventral view and side view) which are entirely different from that of *maculifacies*.

2 ♂♂ 1 ♀ *G. furcifer* n. sp.

These two ♂-specimens and a ♀, which I take to belong to the same species, resemble *transvaalensis* very closely. *Body* black; edge of metapleural plate scarcely or not yellowish and sides of abdominal segment 1 and extreme sides of basal segments entirely black or only very obscurely pallid; tibiae and bases of tarsi pale yellowish, only the front tibiae more darkened, with the legs stouter than in *transvaalensis*; pubescence distinctly longer, denser, more shaggy and more conspicuous than in *transvaalensis* in both sexes but especially in the ♂ where it is very dense on occiput, head below, front part of thorax, mesopleuron and venter, entirely frosty white in both sexes, with the fine hair-like scaling on thorax, scutellum and abdomen above in ♀ also very pale brassy yellowish and denser than in ♂♂ where the scaling is more silvery, with the denser and broader scaling on frons in ♀, head below in both sexes and on body below and legs silvery whitish, with the pubescence on sides of face also composed of flattened silvery scaling and hairs as in *transvaalensis*; wings also with a very distinct subopaque milky whitish tint, even slightly more pronounced than in *transvaalensis*, the veins pale yellowish brown, becoming paler at base and more brownish towards apex and along costal vein, with the second submarginal cell across its apex distinctly broader than length of its lower vein, the end of the upper vein thus more distinctly bent upwards, the discal cross vein distinctly beyond middle of discoidal cell, with the whitish squamae slightly larger and broader than in *transvaalensis*; halteres with ivory whitish knobs. *Head*

with the eyes in ♂♂ in actual contact for a much shorter distance, only about 3 times as long as tubercle (front view), the line of contact scarcely or only slightly impressed, the upper facets on the whole distinctly less coarse and the ocellar tubercle not so conspicuously raised; interocular space on vertex in ♀ also 2 times as broad as tubercle; antennae with joint 1 a little more than 3 times as long as joint 2, apparently slightly longer than in *transvaalensis*, but with



Text-fig. 274.—Side and ventral (dorsal) views of hypopygium and various parts of it of ♂ *Geron furcifer* n. sp.

distinctly longer and denser white hairs, and with the apical part of joint 3 slightly more slender; proboscis about 3½ mm. long. *Hypopygium* of ♂ (text-fig. 274) very different from that of *transvaalensis* (cf. text-fig. 269) and from other species of *Geron*, with 4 apically directed hook-like spines in a row on the dorsal apical aspect of basal part on each side, with the apical process on each side (corresponding to beaked apical joints of other Bombyliids) slightly movable in an up-and-down direction, with 2 processes near base on each side; ramus on each side, and joining on to basal part, shaped as shown in figure and produced towards apex into an inwardly directed spine; central guide (shown from side, from below and from apical part of hypopygium, figures to the right) produced basally on each side into a process, but with the obliquely and apically directed wing or lobe not produced into a prong as in other species of *Geron*; separate prong on each side of aedeagus (shown separately on extreme left), twisted as shown in

figure; aedeagus somewhat dilated basally and produced as shown in figure.

Types in the Transvaal Museum.

Length of body: about 5-6 mm.

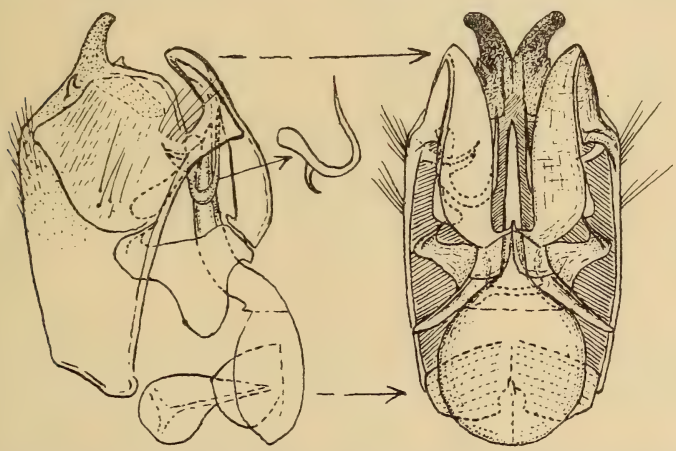
Length of wing: about 5½-6 mm.

Locality.—Transvaal: Pretoria (Munro, 11/11/17) (Types); Eng. d. boom (? Pretoria) (28/12/06).

Recognised by its conspicuous white pubescence, short line of contact of eyes in ♂ and subopaque milky whitish wings.

1 ♂ *G. dubiosus* n. sp.

Body black; edge of metapleural plate and sides of abdominal segments also entirely black; hind margins of sternites very obscurely



TEXT-FIG. 275.—Side and ventral (dorsal) views of hypopygium of ♂ *Geron dubiosus* n. sp.

and narrowly pallid; legs with the femora entirely black, the front tibiae and tarsi also black, the middle and hind tibiae and extreme bases of tarsi yellowish, the apices of hind tibiae, however, dark; pubescence (where still indicated in denuded specimen) not very long and dense, entirely white, with the denser scaling on body below silvery whitish; wings with a subopaque milky whitish tint, more evident towards base and in costal cell, the veins brownish, becoming darker apically and along costal veins, with the second submarginal cell only about as broad, or even slightly narrower, than long along its lower vein, the discal cross vein much beyond middle of discoidal

cell; halteres with ivory whitish knobs. *Head* with the eyes above in actual contact for a distance about 3 times as long as tubercle (front view), the line of contact not so deeply impressed as in species with a longer contact; antennae with joint 1 a little longer than 3 times as long as 2 and with shortish hairs on it; proboscis about 3 mm. long. *Hypopygium* (text-fig. 275) nearest to that of *furcifer* (cf. text-fig. 274) in that the central guide to aedeagus is not produced apically into a prong; prong or hook on each side separate and shown obliquely from behind in the middle figure and its position under ramus in dotted line in right figure; basal part with only 1 hook-like spine on each side dorsally towards apex; ramus, on each side, produced apically somewhat as in *nomadicus* (cf. text-fig. 280), the side on each side of basal part also produced together with it; central guide as in *furcifer*, not produced apically into a long prong but merely ending in a slightly inwardly directed hook.

Type in the South African Museum.

Length of body: about 6 mm.

Length of wing: about 6 mm.

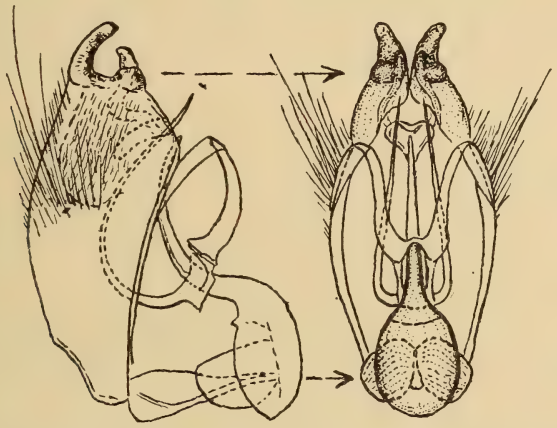
Locality.—Karoo: Murraysburg Distr. (Thorne, Mar. 1931).

This somewhat denuded ♂ differs from *furcifer* in having much shorter and less dense pubescence, shorter hairs on antennal joint 1, darker front tibiae and narrower second submarginal cell across apex, etc.

3 ♂♂ *G. australis* n. sp.

Body, including edge of metapleural plate and femora, entirely black; front tibiae very dark blackish brown, almost black, the middle and hind ones and basal parts of middle and hind tarsi yellowish; pubescence entirely white, not very long but comparatively dense, especially on occiput, head below, front part of thorax, mesopleuron and venter, that on sides of face composed mainly of flattened silvery scale-like hairs, but also with intermixed long white hairs, with the fine hair-like scaling on abdomen above with a very faint brassy or sericeous yellowish tint, the denser and broader scales on body below and femora silvery whitish; wings distinctly subopaquely milky whitish, slightly more so towards base and in costal cell, the veins pale brownish yellow to brownish, becoming slightly darker towards apex and paler towards base, with the second submarginal cell subequal apically to its length along lower vein, the upper vein almost straight at end, with the discal cross vein distinctly or even much beyond middle of discoidal cell, the apical cross vein of the latter cell, however, only

slightly S-curved, the squamae whitish and white-fringed; halteres with ivory whitish or yellowish knobs. *Head* with the eyes above in actual contact for a distance of only about 2½ times as long as ocellar tubercle, the line of contact not or scarcely impressed; antennae with joint 1 scarcely 3, or even distinctly less than 3, times as long as joint 2; proboscis comparatively slender, about 3 mm. long. *Hypopygium* (text-fig. 276) with a pair of slightly downwardly directed apical processes on basal part and another pair of shorter apical processes



Text-fig. 276.—Side and ventral (dorsal) views of hypopygium of ♂ *Geron australis* n. sp.

more to the inside below the stouter ones; central guide with the prong, on each side, arising pitchfork-like directly from body of guide, the basally projecting lobe, on each side of central guide, much reduced, not prominent and lobe-like as in many other species.

Type in the British Museum.

Length of body: about 5 mm.

Length of wing: about 5 mm.

Locality.—S. Cape Province: Mossel Bay (Turner, Dec. 1921) (Type). S.E. Karoo: Cradock (Mus. Staff, Oct. 1935).

Distinguished from related species by the comparatively short line of contact of the eyes in ♂♂ and the shortish first antennal joints.

1 ♂ *G. dissors* n. sp.

This male is externally practically indistinguishable from the ♂ of *australis,* differing only in having the tibiae not pale yellowish or pale yellowish brown but more brownish, the front ones almost black and

the others also very dark apically, in having the veins in wings distinctly darker, more blackish brown, becoming paler and more yellowish at base and with the base of vein separating submarginal cells less rapidly bent down at right angles to third longitudinal vein. The *hypopygium*, however, differs from that of *australis* (cf. text-fig. 276) in having the apical lobes of basal part more directed downwards and without any secondary, obvious or distinct processes or lobes at bases of apical ones on each side; the apically directed curved stylet-like process on each side from central guide and dorsal to aedeagus as in *australis* but slightly longer and projecting slightly more apically. In other respects the structures are the same for both species.

Type in the South African Museum.

Length of body: about 4½ mm.

Length of wing: about 5 mm.

Length of proboscis: about 2½ mm.

Locality.—Central Karoo: Middleburg (Mus. Staff, Oct. 1935).

2 ♀♀ *G. niveus* n. sp.

Body black; edge of metapleural plate, side of abdominal segment 1 and sides and to a certain extent hind margins laterally of segments 2–5, the hind margins of ventral segments, the lobes below on segment 8 and the genital lobes yellowish; legs with the femora entirely black, the middle and hind tibiae yellowish, the front tibiae obscurely yellowish above and the tarsi on the whole dark, the basal parts also darker than the tibiae and more brownish yellowish; pubescence comparatively dense for ♀♀, entirely frosty white, that on occiput, head below, front part and sides of thorax, mesopleuron, first abdominal segment, coxae and venter being especially dense, that on antennal joint 1 dense and conspicuous, that on frons and that intermixed with silvery scales on sides of face also conspicuously developed, with the fine hair-like scaling on body above very distinct on front part and sides of thorax, base of thorax, on scutellum and transversely across abdomen above, silvery whitish, those on thorax with a slight, but faint, straw-coloured yellowish sheen, with the broader and denser scaling on body below, frons, behind eyes and on femora silvery whitish, those on frons and sides of face specially conspicuous; wings with a distinct, subopaque milky white tint, becoming more evident towards base, the veins yellowish brown to brownish, becoming much darker towards apex and paler basally, with the second submarginal cell considerably broader apically than

long along lower vein, with the discal cross vein distinctly beyond middle of discoidal cell, squamae opaquely whitish and white-fringed; halteres with ivory whitish or yellowish knobs. *Head* with the interocular space on vertex quite $2\frac{1}{2}$ times as broad as tubercle; frons itself comparatively broad, with the area in front of tubercle convex, medially longitudinally depressed to the transverse depression; antennae with joint 1 comparatively stoutish, about, or a little more than, 3 times as long as 2; proboscis rather stout, about $3\frac{1}{2}$–$3\frac{2}{3}$ mm. long. The body is rather bulky.

Type in the Imperial Institute and paratype in the Rhodesian Museum.

Length of body: about 6–$6\frac{1}{2}$ mm.

Length of wing: about 6–7 mm.

Locality.—S. Rhodesia: Matopo Hills (Ogilvie, 10/1931) (Type); Sawmills (12/12/26).

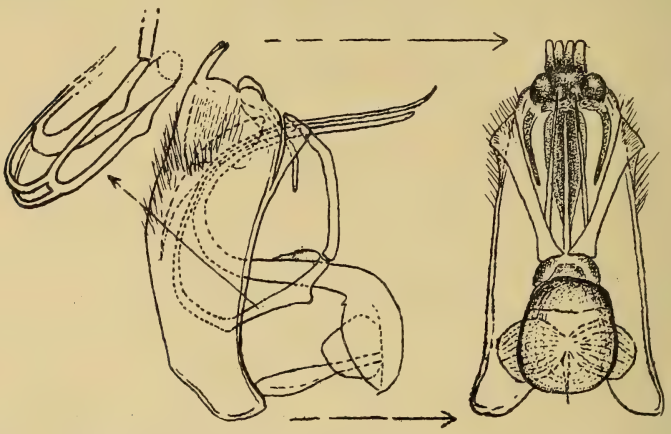
Distinguished from other known ♀♀, with entirely black femora, by the dense, frosty white pubescence, longer and denser hairs on antennal joint 1, stouter antennal joint 1, much red on sides of abdomen, slightly stouter legs, darker tarsi and larger size.

1 ♂ 5 ♀♀ *G. parvus* n. sp.

(Syn. = *hybridus* Bezz. nec Meig., p. 167, Ann. S. Afr. Mus., vol. xviii, 1921.)

Body black, even entire abdomen black in ♂; edge of metapleural plate, sides of tergite 1 and extreme sides of some of the basal segments in ♀♀ slightly reddish or obscurely reddish; legs slender, entirely very dark or reddish brown in ♂ and some ♀♀, even the tibiae and tarsi being very dark, with the tibiae paler and even yellowish in some ♀♀ and even with the hind femora tending to be yellowish in one ♀; face with a small but distinct pallid or yellowish macula apically, more evident in ♀♀; pubescence comparatively sparse in both sexes, entirely whitish above and below, with the scaling on body above whitish in ♂, straw-coloured yellowish to very pale brassy yellowish in ♀♀, silvery whitish on body below and legs in both sexes; wings greyish hyaline, iridescent, with a very faint and scarcely perceptible yellowish or greyish yellow tint in certain lights, with the veins yellowish to pale yellowish brown becoming slightly darker apically, with the discal cross vein at about or tending to be at middle of discoidal cell and apical cross vein of discoidal cell very slightly S-curved, almost straight, with the squamae subopaquely

whitish and fringed with whitish hair; halteres with almost white knobs. *Head* with eyes in ♂ in actual contact for a distance about 3 times as long as ocellar tubercle, the line of contact scarcely impressed and the tubercle not very prominently pimple-like; interocular space in ♀♀ only just or even a little narrower than 2 times as broad as tubercle, the inner margins of eyes rather rapidly converging towards tubercle; frons in ♀♀ thus rather narrowish basally; antennae with joint 1 rather short, only about $2\frac{1}{2}$ or scarcely 3 times as long as 2; proboscis about 2 mm. long. *Hypopygium* of ♂ (text-fig. 277)



Text-fig. 277.—Side and ventral (dorsal) views of hypopygium of ♂ *Geron parvus* n. sp.

peculiar in having 4 incisor-like, flattened processes in a row apically on basal part; aedeagus long and curved; central guide with the prong on each side long, slender and curved, the prongs arising some distance away from the U-shaped body of central guide (*see* figure to left); basal strut narrow and bat-shaped.

Types in the South African Museum.

Length of body: about $3\frac{1}{2}$ mm.

Length of wing: about $3\frac{1}{2}$ mm.

Locality.—South West Africa: Ovamboland; Mafa (Barnard, Feb. 1921) (Holotype); Damaraland; Otjituo (Tucker, Jan. 1920) (Allotype); Kaokoveld; Hoarusib Otshu (Mus. Exp., Mar. 1926). Natal: Durban (Muir, 1905) (in Imp. Institute).

Recognised by its smallish size, shortish first antennal joints, yellowish macula on face, and very slightly cinereous yellowish wings in which the discal cross vein is at about the middle of discoidal cell, and by the peculiar type of hypopygium. From *maculifacies* it

differs in being smaller, more greyish yellowish wings in which the discal cross vein is at about middle of the discoidal cell, and in having a different type of hypopygium.

1 ♀ *G. delicatus* n. sp.

Body black; lobes on segment 8 below and genital lobe yellowish; legs with the femora very dark blackish brown, almost black, the tibiae and basal parts of tarsi brownish yellow; pubescence sparse, entirely whitish and with silky or silvery gleams, the fine hair-like scaling on body above with a very pale brassy yellowish tinge, sparse, with the denser and broader scaling below, behind eyes, on frons and sides of face (intermixed on face with some hairs) and on legs silvery white; wings greyish hyaline, not tinted milky whitish, iridescent, with the veins brownish yellow, the discal cross vein at about middle of discoidal cell and apical cross vein of this cell almost straight, with the second submarginal cell distinctly longer along its lower vein than broad across apex, the squamae opaquely whitish; halteres with ivory yellowish knobs. *Head* almost spherical, with the interocular space on vertex about 2 times as broad as tubercle; frons comparatively broad and with numerous hairs on each side; antennae with joint 1 short, about $2\frac{1}{2}$ times as long as 2; proboscis comparatively stout and long for so small an insect, about 2 mm. long.

Type in the Transvaal Museum.

Length of body: about 3 mm.

Length of wing: about 3 mm.

Locality.—Transvaal: Pretoria (Munro, 13/12/14).

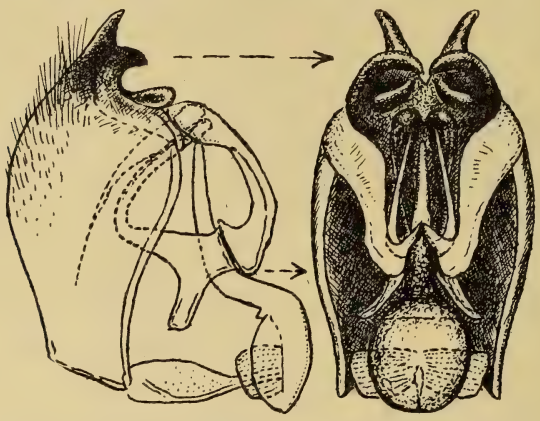
Also one of the small and delicate species, distinguished from the preceding species by the paler tibiae, absence of a pale spot on face and also by the relatively broader frons and longer and stouter proboscis.

2 ♂♂ 1 ♀ *G. peringueyi* n. sp.

(Syn. = *hybridus* Bezz. nec Meig., p. 99, Ann. S. Afr. Mus., vol. xviii, 1921.)

Body black; extreme sides of abdominal segments 2–5, hind margins of ventral segments and edge of metapleural plate (obscurely) yellowish or pallid; legs with at least the middle and hind femora, the tibiae and basal parts of tarsi yellowish or pale brownish yellow, the femora in ♀-allotype slightly more brownish towards base and front femora in both sexes predominantly dark, the apical part being

yellowish, with the undersurfaces of front tibiae and apices of the others also darkish; pubescence entirely frosty whitish, slightly longer and much denser in ♂♂ and very dense on occiput, front and sides of thorax, mesopleuron, venter and coxae, with the fine hair-like scaling on body above pale brassy to golden yellowish, also distinct on thorax of ♂♂, but much denser on abdomen above in both sexes, with the broader and flattened scaling on body below silvery whitish, very dense behind eyes and on sides of face where they are tuft-like



TEXT-FIG. 278.—Side and ventral (dorsal) views of hypopygium of ♂ *Geron peringueyi* n. sp.

and intermixed with some longish hairs, dense on coxae and on abdomen below more or less concentrated as bands across hind margins, also very dense on legs; wings with a distinct subopaque milky white tint, becoming more evident towards base and in costal cell, the veins yellowish to yellowish brown, becoming darker towards apex, with the second submarginal cell distinctly broader across apex than long along its lower vein, the upper vein also distinctly bent upwards, with the discal cross vein much beyond middle of discoidal cell, with the squamae opaquely whitish and white-fringed; halteres with very pale yellowish to ivory whitish knobs. *Head* with the eyes in ♂♂ in actual contact above for a distance a little more than 3 times as long as tubercle, the line of contact not or scarcely impressed; interocular space on vertex in ♀ about 2 times as broad as tubercle; frons in ♀ also slightly centrally depressed, the depression merging into the anterior transverse depression; antennae with joint 1 comparatively short, a little less than 3 times as long as joint 2; proboscis about 3–3½ mm. long. *Hypopygium* of ♂ (text-fig. 278) with the

basal part produced apically into a pair of slightly divergent dentate processes at the bases of which there are 2 inwardly curved hook-like processes, one on each side and also a lobe-like prominence internal to these on each side; aedeagus straight and shortish; central guide with a comparatively long basally directed process on each side and a flattened forwardly directed prong.

Holotype in the Imperial Institute, allotype in the British Museum and paratype in the South African Museum.

Length of body: about 5–6 mm.

Length of wing: about 5–6 mm.

Locality.—S. Karoo: Ceres (Mackie, 2/1932) (Holotype). S.W. Cape Province: Cape Town; Cape Point (Simmonds, 1930) (Allotype). Namaqualand: O'okiep (Peringuey) (labelled as *hybridus* by Bezzi).

This species, with its reddish femora, is easily recognised by the comparatively short first antennal joints. There is some doubt whether the ♀ actually belongs to this species, but the short first antennal joints agree with those of the ♂-specimens.

1 ♂ 1 ♀ *G. lactipennis* n. sp.

(Syn. = *hybridus* Bezz. nec Meig., p. 99, Ann. S. Afr. Mus., vol. xviii, 1921.)

Body black; edge of metapleural plate, sides of first abdominal segment, sides below and even hind margins laterally of segments 2–7 in ♀, and sides of segments 2–6 in ♂ pallid or yellowish; legs with the entire middle and hind femora in ♂, the hind femora and apical halves of middle ones in ♀ and the tibiae and basal parts of all the tarsi in both sexes pale yellowish, with the apical halves of front tibiae in ♂ also yellowish, with the extreme apices of hind tibiae and the apices and undersurfaces of front tibiae darkish; pubescence entirely silvery whitish, longer and denser in ♂, especially on front part of body, with the fine hair-like scaling above more silvery whitish in ♂, very pale golden or brassy on base of thorax and on scutellum in ♀, the broader and denser scaling on body below and on legs silvery whitish, arranged more as bands across hind margins on sides of abdomen and on venter; wings more or less conspicuously tinted subopaquely milky whitish, more so than in other species of *Geron*, the veins pale yellowish, becoming slightly darker towards apex, with the second submarginal cell considerably broader apically than long along its lower vein, the discal cross vein distinctly beyond middle of discoidal cell, the squamae opaquely whitish, yellowish-margined and fringed with whitish hairs;

halteres with pale yellowish knobs. *Head* with the eyes in ♂ above in actual contact for a distance of only about 2½ times as long as tubercle, the line of contact scarcely impressed; interocular space in ♀ on vertex about 2 times as broad as tubercle; frons in ♂ depressed basally, broadly transversely depressed in ♀; antennae with joint 1 about 3, or even very slightly more, times as long as joint 2; proboscis rather long, about 4 mm. long. *Hypopygium* of ♂ very much like that of *peringueyi* (cf. text-fig. 278), the apical processes, however, distinctly longer, more slender and more laterally compressed, much flatter, the hook-like processes at the bases of the others also longer, their apical parts more curved downwards and sharp; basal part itself slightly more slender; central guide with the apically directed prongs distinctly longer.

Holotype in the South African Museum, allotype in the Transvaal Museum.

Length of body: about 6–6½ mm.

Length of wing: about 6–6½ mm.

Locality.—S. Rhodesia: Salisbury (Tucker, Mar. 1917) (Holotype labelled as *hybridus*); Bulawayo (Stevenson, 8/12/24) (Allotype).

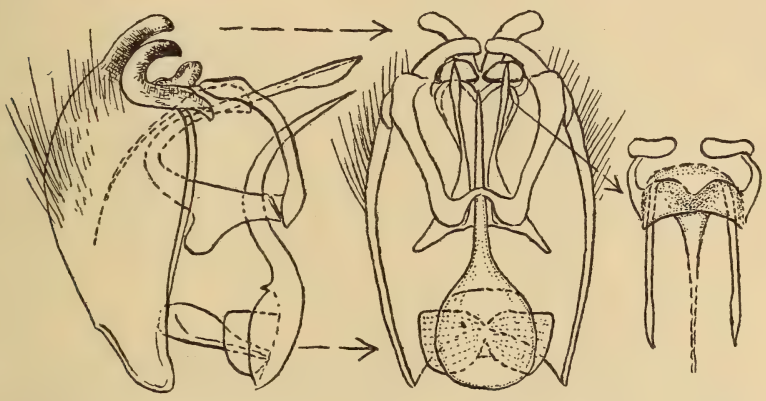
This species is recognised by its more conspicuous milky white wings, long first antennal joints and extensive red on sides of abdomen. The ♀-specimen is somewhat damaged, but I believe it to belong to this species. The species is very close to *peringueyi*.

4 ♂♂ 2 ♀♀ *G. psammobates* n. sp.

(Syn. = *hybridus* Bezz. nec Meig., p. 114 The Bombyliidae of the Ethiopian Region, 1924 in part.)

Body black; narrow edge of metapleural plate (obscurely) and narrow margins of sides of abdominal segments 2–4 reddish or pallid; legs with the extreme apices of front femora, apical halves or apical part of middle femora and apical half or part of, or even entire hind femora yellowish to yellowish brown, with the upper surfaces of front tibiae, the entire middle and hind tibiae and basal parts of tarsi yellowish to pale brownish, with the extreme apices of hind tibiae slightly darkened (1 paratype has the femora more extensively darkened); pubescence fairly dense, entirely white, having a soft woolly appearance, with the fine scaling on abdomen above very pale brassy yellowish to pale sericeous, the broader and denser scaling on body below and on legs silvery whitish, that on abdomen on sides concentrated in bands across the hind margins, that on sides of face dense, tuft-like

and intermixed with longish hairs; wings with a distinct subopaque milky whitish tint, more evident towards base, the veins yellowish to yellowish brown, becoming darker towards apex and along costal part, with the upper vein of second submarginal cell distinctly bent upwards at its end and the cell about as broad apically as long along lower vein, with the squamae opaquely whitish and fringed with longish white hairs towards its base, with the discal cross vein much beyond middle of discoidal cell; halteres with ivory whitish knobs.



Text-fig. 279.—Side and ventral (dorsal) views of hypopygium of ♂ *Geron psammobates* n. sp.

Head with the eyes above in ♂♂ in actual contact about 4, or even slightly more, times as long as tubercle, the line of contact impressed and sometimes very deeply so anteriorly where frons is also depressed; ocellar tubercle pimple-like, prominently raised; antennae with joint 1 about 3 times as long as 2, with 3 rather rapidly narrowed beyond middle, the apical part thus markedly slender and sharply pointed; proboscis about 3 mm. long. *Hypopygium* (text-fig. 279) with the apical processes of basal part arranged as shown in figures; apically directed prong on each side of central guide spear-blade shaped and broadened apically; guide to prongs and aedeagus broadened apically and narrow basally (to right of figures and viewed from directly apically).

Type of ♂ in the Transvaal Museum.

Length of body: about 4½–5½ mm.

Length of wing: about 5–6 mm.

Locality.—Transvaal: Pretoria (Munro, 28/12/12) (Type). S. Rhodesia: Bulawayo (6/2/27) (Rhodesian Museum). Brit. E. Africa (Stordy) (in British Museum, placed as *hybridus*).

Two somewhat damaged ♀-specimens from Southern Rhodesia: Beit Bridge (Mackie, 4/1932) and Matopo Hills (Ogilvie, 4/1932) in the collection of the Imperial Institute appear to belong to this species where they may be provisionally placed.

They are characterised by having the edge of metapleural plate, sides of first abdominal segment, sides of segments 2–6 below, the hind margins of ventral segments and the ventral lobes broadly yellowish; legs with the apical parts of front femora, entire middle and hind femora, upper surfaces of the front tibiae, the other tibiae and the basal parts of the tarsi yellowish; pubescence also white, the fine scaling on body above yellowish on occiput, whitish on thorax in front and brassy or pale golden at base of thorax, on scutellum and on abdomen above, the rest of the scaling as in ♂♂ silvery whitish; wings as in ♂♂. *Head* with the interocular space on vertex about 2 times as broad as tubercle, with antennal joints 1 and 2 as in ♂♂ (3 missing), with the proboscis rather long and slender, about 4 mm. long.

Length of body: about 5 mm.

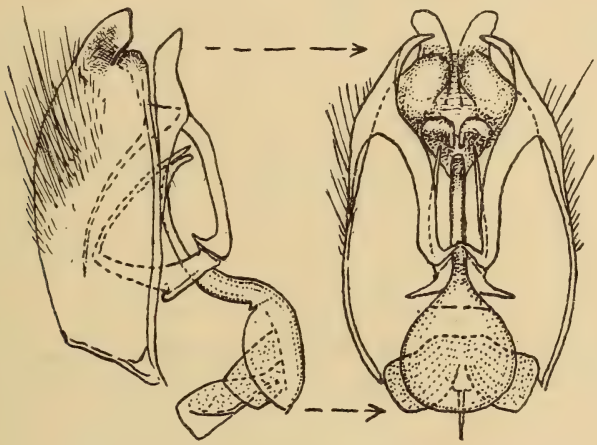
Length of wing: about 6 mm.

This species seems to be slightly variable in size, in the red on femora and the intensity of the milky white tint on wings. I have no doubt that the 4 ♂-specimens belong to the same species, for the hypopygium is identical in all the specimens. The ♂-paratype from British East Africa (Stordy) was forwarded to me by the British Museum as *hybridus* Meig and I believe is one of the three ♂♂ referred to by Bezzi on p. 114 (loc. cit.) as coming from Southern Abyssinia. This ♂ differs from the type only in having the femora more extensively darkened.

7 ♂♂ 5 ♀♀ *G. nomadicus* n. sp.

Body black; extreme sides of abdominal segments below very narrowly and narrow hind margins of venter in ♂♂ obscurely pallid or yellowish; edge of metapleural plate, sides of first abdominal segment, extreme sides of the other segments and hind margins of the venter in ♀♀ slightly more broadly reddish; legs with the apical halves or apical parts or even upper surfaces of middle and hind femora in ♂♂ and almost the entire middle and hind ones in ♀♀, the tibiae and basal parts of tarsi in both sexes yellowish, pale yellowish brown or even pale ochreous brownish, with the under surfaces and apices of the front tibiae and apices of hind tibiae more or less darkened, with the greater part of tarsi in ♂♂ and ♀♀ black; pubescence on the whole

sparse, denser and slightly longer in ♂♂, dull whitish, but with a faint straw-coloured sheen on occiput, disc of thorax and even on scutellum, the hairs on ocellar tubercle being distinctly darker and more evidently yellowish or even brownish in certain lights, with the fine scaling on abdomen above in ♂♂ pale brassy yellowish, that on thorax, scutellum and abdomen above in ♀♀ more golden yellow, that on occiput in ♀♀ especially yellowish golden, the broader and denser scaling on body below dense in patches on front part of pleurae, dense on coxae and



Text-fig. 280.—Side and ventral (dorsal) views of hypopygium of ♂ *Geron nomadicus* n. sp.

very dense on venter and legs, entirely silvery white, the pubescence on sides of face composed mainly of dense, flattened, silvery white scales; wings vitreous hyaline, iridescent, not distinctly tinted subopaquely whitish, only very slightly so towards base, the veins yellowish to pale yellowish brown, becoming slightly darker towards apex and along costal and first longitudinal veins, with the discal cross vein distinctly beyond middle of discoidal cell, with the second submarginal cell usually slightly broader apically than long along its lower vein, with the squamae opaquely milky whitish and white-fringed; halteres with ivory whitish knobs. *Head* with the eyes in ♂♂ in actual contact above for a distance at least 4½ times as long as tubercle, the line of contact deeply impressed; interocular space in ♀♀ on vertex about 2, or even slightly less, times as broad as tubercle; antennae with joint 1 about 3, or even a little more, times as long as 2; proboscis slender, about 2½–3 mm. long. *Hypopygium* of ♂ (text-fig. 280) with the basal part produced apically into blunt, slightly diverg-

ing lobes at the bases of which there is on each side another boss-like prominence; ramus on each side, joining side of basal part to aedeagal apparatus, produced apically into a slightly inwardly directed blade-like or flattened process; aedeagus slightly curved apically; central guide with the basal process on each side slightly horizontal and the apical prong slender.

Types in the South African Museum.

Length of body: about 4–5 mm.

Length of wing: about 4–5½ mm.

Locality.—S. W. Africa: Kaokoveld; Warmbad (Mus. Exp., Feb. 1925) (Types); Zesfontein (Mus. Exp., Feb. 1925). N. Namaqualand: Goodhouse (Mus. Exp., 1936).

It is possible that the specimens from South West Africa and referred to *gibbosus* Meig. by Loew (p. 196, Dipt. Faun. Südafr. i, 1860), may belong to this species. The species appears to be variable and several distinct forms are recognisable.

5 ♂♂ 4 ♀♀ *G. nomadicus* var. *breyeri* n.

The hypopygium of the ♂ of these specimens is identical with that of *nomadicus* s. str. and as there appear to be no distinct, external and structural differences, these specimens may be taken to represent a more or less distinct variety of *namadicus*. Externally this variety differs from the typical form in having the pubescence on body above, especially on occiput and front part of thorax, in the ♂♂ more especially, more distinctly and more deeply straw-coloured yellowish and even yellowish, the hairs on ocellar tubercle even more distinctly dark or brownish, the fine scaling on occiput and rest of body above deeper and more conspicuously golden, especially in ♀♀, where it is also much denser on the abdomen, with this golden scaling thus enhancing the yellow colour of the erect hairs; second submarginal cell even slightly broader apically and its upper vein distinctly more bent upwards at end.

Holotype in the Transvaal Museum, allotype in the South African Museum.

Locality.—Transvaal: N.E. Zoutpansberg Distr. (Breyer, 7 and 8/16) (Types). S.W. Africa: Grt. Karas Mts. (Mus. Exp., Nov. 1936). S. Rhodesia: Bulawayo (Stevenson, 1/12/23). Portuguese E. Africa: Porto Amelia (Ogilvie, 6/1932) (In. Imp. Institute). Zululand: Mfongosi (Jones, Mar.–Apr., 1935).

1 ♂ *G. nomadicus* var.

The tendency of *nomadicus* to form slight varieties is still further supported by a ♂-specimen, from Zesfontein in South West Africa, which shows the following differences:—Legs with the femora black and the tibiae and bases of tarsi yellowish, the front tibiae tending to be slightly darkened below and at apex and the front tarsi almost entirely black; wings with the discal cross vein scarcely beyond middle of discoidal cell. *Head* with the first antennal joints comparatively short, only very little more than 2 times as long as joint 2, these joints also tending to be dark brownish, with the proboscis about $3\frac{1}{2}$ mm. long.

1 ♂ 1 ♀ *G. nomadicus* var.

This variety of *nomadicus* differs from the former only in having slightly darker veins on the wings and a more distinct milky whitish tint especially towards the base, in having the discal cross vein, as in *nomadicus* s. str., distinctly beyond middle of discoidal cell.

Locality.—Karoo: Murraysburg Distr. (Thorne, Mar. 1931) and Aberdeen (Mus. Staff, Nov. 1935).

1 ♀ *G. latifrons* n. sp.

Body black; genae and upper margin of buccal cavity ivory yellowish; hind edge of metapleural plate, sides of tergite 1 and sides of all the other tergites below, where they overlap venter, and to a certain extent the hind margins of these tergites on extreme sides of abdomen pale yellowish red; legs with the front femora and more or less basal part of middle femora black, with the apical part of middle femora, the hind femora, the upper surfaces of front tibiae and the entire middle and hind tibiae as well as bases of tarsi pale reddish yellow; pubescence rather dense on occiput, front part of thorax, mesopleuron, venter and coxae, entirely sericeous whitish above and below, the dense tuft of hairs on sides of face silvery whitish, with the scaling on frons, sides of head behind eyes, on body above and more densely on venter and that on legs gleaming silvery whitish; wings vitreous hyaline, with a very feeble milky whitish tint in certain lights, but with the base, alula, and costal cell slightly more distinctly milky whitish, with the veins very dark brown, even blackish brown towards apex, with the apex of costal cell and the

base of wings yellowish, with the discal cross vein just beyond middle of discoidal cell, with the second submarginal cell broad apically and broader than long along lower vein, with the squamae opaquely whitish and fringed with white; halteres yellowish, with whitish knobs. *Head* with the interocular space on vertex comparatively broad, nearly 3 times as broad as ocellar tubercle; frons thus very broad, the inner margins of eyes only gradually diverging anteriorly, the frons depressed anteriorly; face above buccal cavity subequal in length to combined antennal joints 1 and 2; antennae with joint 1 nearly 4 times as long as 2; proboscis about $3\frac{1}{2}$ mm. long.

Type in the South African Museum.

Length of body: about $5\frac{1}{2}$ mm.

Length of wing: about 6 mm.

Locality.—S.W. Africa: Grt. Karas Mts. (Mus. Exp., Nov. 1936).

This species differs from the ♀♀ of all the other known South African species by its relatively broad interocular space. From the ♀ of *peringueyi* n. sp., which it very much resembles, it differs in having a broader interocular space and much darker wing-venation.

1 ♀ *G. bechuanus* Hesse.

(P. 170, Ann. Trans. Mus., vol. xvii, 1936.)

Black; edge of metapleural plate, sides of abdominal segment 1 and sides and hind margins below of the other segments and the ventral lobes on segment 8 rather conspicuously yellowish; legs comparatively stout for a *Geron*, with the middle and hind femora entirely ochreous yellowish, the upper surfaces of front tibiae, the entire middle and hind tibiae and bases of tarsi also ochreous yellowish; pubescence short, but comparatively dense for a ♀, very dense on abdomen, also dense on front part of pleurae and on coxae, that on body above with a distinct sericeous yellow sheen, even distinctly subgolden on occiput, base of thorax and base of abdomen above, that on body below more silvery whitish, with the finer, hair-like scaling above denser than in other species and conspicuously dense on base of thorax and especially abdomen, very deep golden and on abdomen more concentrated across hind margins as bands, the scaling on frons and sides of face dense and brilliantly silvery white, that on face almost entirely composed of scales, the scaling on body below broader, silvery whitish and dense on front part of pleurae, on coxae and legs and very dense on venter; wings greyish hyaline, with a distinct, subopaque milky whitish tint in costal cell

and basal part, the veins dark brownish in apical half, becoming more yellowish towards base, the discal cross vein much beyond middle of discoidal cell, with the second submarginal cell broader apically than long and with its upper vein much bent upwards at end, the squamae opaquely whitish and white-fringed; halteres with very pale yellowish knobs. *Head* with the interocular space on vertex about 2 times as broad as tubercle; antennae with joint 1 rather stoutish, about 3 times as long as 2; proboscis about 4 mm. long. *Body* on the whole rather bulky for a *Geron*.

Type in the Transvaal Museum.

Length of body: about 7 mm.

Length of wing: about 8 mm.

Locality. — Bechuanaland: Metsimaklaba (V.-L. Kal. Exp., 7–12/3/1930).

This ♀ is characterised by the comparatively dense pubescence, remarkably dense scaling on abdomen, markedly stoutish legs and the compact, somewhat bulky, body. It is very close to the ♀ of *nomadicus* var. *breyeri*, from which it is distinguished by the characters given in the key.

*Species unknown to me.**

G. capensis Walk.

(P. 195, Insect. Saund. Dipt. iii, 1852; Loew, pp. 196 and 197, Dipt. Faun. Südafr., i, 1860 (as synomym of *gibbosus* Meig.); Bezzi, p. 114, The Bombyliidae of the Ethiopian Region, 1924.)

There is no doubt that *capensis* Walk. belongs to *Geron* and to the category with yellowish legs and ivory whitish genae, but as Walker's description is so brief and vague it is impossible to establish its identity without examining the actual specimen. This difficulty is even greater now that I have shown that both Loew and Bezzi confused several South African species with the Palaearctic *gibbosus* Oliv. (*hybridus* Meig.). In all probability I have myself redescribed Walker's species as a separate species. Species, such as either *turneri*, *australis*, *dubiosus* or *peringueyi*, which are found more to the south of the subcontinent, may eventually prove to be synonymous with *capensis*.

* For *G. semifuscus* Séguy (p. 15, Mem. Mus. Zool. Univ. Coimbra (1), No. 67, 1933), described from Natal, see Appendix to Part II.

G. dicroma Big. nec Bezz.

(P. 374, Ann. Soc. Ent. Fr., vol. lxi, 1892.)

This species was described as questionably from the Cape Province by Bigot. From Bigot's description it is difficult to state whether this species is to be placed in the genus *Geron* s. str. as defined in this paper. The specimen from Aus, which Bezzi referred to this species (Bezzi, p. 101, Ann. S. Afr. Mus., vol. xviii, 1921), obviously does not belong to it and does not agree with Bigot's description (*see* under *Amictogeron* n. gen. in this paper).

Amictogeron n. gen.

This new genus is erected to contain the three South African species, *leptocerus* Bezz., *barbatus* Bezz. and *bezzii* (n. n. for *dichroma* Bezz. nec Bigot), described by Bezzi and referred by him to the genus *Geron*, as well as several other new species described in this paper. These species show certain characters which are more or less common to all of them and not present in the genus *Geron* s. str.

The characters of this new genus are:—

Body with the thorax convex and humped as in *Geron*; the pleurae also more or less laterally compressed. *Head* more or less globular; eyes in ♂♂ in contact above for a long distance, the line of contact usually impressed, with the upper facets coarser and imperceptibly merging into finer lower ones, with the inner margins, opposite bases of antennae in ♂♂, distinctly and often more conspicuously sinuate than in *Geron*, with the interocular space in ♀♀ only a little broader than ocellar tubercle on vertex, narrower than in *Geron* and not, or scarcely, 2 times as broad as tubercle; frons small and triangular in ♂♂, broader, longer, and gradually becoming wider towards apex in ♀♀, the middle part in ♀♀ usually slightly longitudinally raised and with a duplicated row of short, blackish bristly hairs on each side (not along eye-margins), distinctly somewhat broadly transversely depressed anteriorly; face always bare, without any hairs or silvery scales as in *Geron*, usually dull, somewhat medially raised, the sides being distinctly depressed and also without any silvery scaling or whitish hairs on sides of antennal insertions; genae narrow, never gleaming ivory whitish or yellowish as in some species of *Geron*, never bare in the middle, but always provided with comparatively long, forwardly projecting, often conspicuously long hairs, especially in ♂♂, only the extreme upper part of genae being bare

and also without a distinct furrow between them and the buccal cavity; antennae with the first joints elongate, distinctly longer than in *Geron*, never shorter than about 3 times as long as the second joints, more often much more than 3 times as long as second joints, sometimes slightly more separated at their bases than in *Geron* but not to the same extent as in *Pseudoamictus*, often very elongate in some ♂♂, often very much thickened or dilated and knob-like at their bases, especially in ♂♂, with very long and bushy or shaggy pubescence in the majority of the species and in all the forms always with entirely or much black or very dark hair, with the third antennal joints more slender than in *Geron*, less rapidly tapering to a point, usually more rod-like and slender throughout, ending in a scarcely separately visible terminal joint, which again ends in a minute and insignificant style; palps very slender, slightly longer than in *Geron*, and also not visibly jointed; proboscis as in *Geron*. *Wings* sometimes infuscated, with the second submarginal cell always considerably longer than in *Geron*, always much more than 2 times as long along lower vein than broad apically, thus very elongate and with the upper and lower veins sometimes nearly parallel, with the alula always less developed and narrower than in *Geron*, not distinctly produced and lobate, with the apical cross vein of the discoidal cell usually more distinctly S-curved than in *Geron* and with the discal cross vein at about, or beyond, the middle of discoidal cell; halteres only rarely without extensive dark or blackish brown on knobs above. *Abdomen* with the extreme sides below not so lobe-like and overlapping the sternites as in many species of *Geron*, the sides of segment 8 below in ♀♀ also produced lobe-like as in *Geron*. *Legs* as in *Geron*, but with the spicules on tibiae usually more poorly developed, but also with a stouter and longer spur apically below on middle tibiae; claws well developed, curved downwards apically and the pulvilli also well developed. *Pubescence* on body with the erect hairs on the whole less dense and shorter, even in ♂♂, than in *Geron*, but with the hairs on the first antennal joints and on genae usually denser, longer, more bushy, and often very conspicuous, those on body above in ♀♀ very much shorter and sparser than in ♂♂ and also very much shorter and less dense than in *Geron*, those on pleurae sparser in ♀♀, with the erect pubescence on antennae, frons, upper parts of occiput, thorax above and on scutellum never entirely pale or whitish as in *Geron*, but with at least some of the hairs on these, or on some of these, sites dark or black, without any flattened silvery white scaling on head behind the eyes, on genae or frons as in *Geron*, but with fine,

depressed, hair-like scaling on thorax above, scutellum, on abdomen above and below, very sparsely on pleurae and more densely on legs. *Hypopygium* of ♂♂ (text-figs. 281–295) agreeing with that of *Geron* in having the basal part single and not divided into two symmetrical parts by a dorsal suture or depression. As in the case of *Geron* the basal part is not uniformly chitinous, but a great part of the dorsum is membranous, marked off on each side by a more chitinous strip or area (cf. text-fig. 291) in the form of a narrow chitinous strap on each side, passing into the more rigid chitinous sides. The bristly hairs or bristles, if present, are situated dorsally or dorso-laterally on these chitinous parts. The basal part passes apically into a flattened, lobe-like or lappet-like apical process on each side, corresponding to the true beaked apical joints of *Bombyliinae.* As in *Geron* these lobes or processes appear to be more or less immovable or at least not hinge-like and movable as in the Bombyliines. They are usually flattened, lappet-like and more or less triangular and not boss-like or finger-like as in *Geron.* Dorsally each apical process (*see* text-figs. 289, 293, 294, etc.) usually has an adpressed spine (Sp.) and at their bases ventrally there is either a single spine, a recurved process or spine or a flattened spine (V.Pr.) on each side or even a projecting spined process. The medial aedeagal complex (shown in dotted outlines) is lodged in the basal part and attached on each side towards the apical part of basal part by a ramus (R.). The sides of the basal part joining on to the ramus are usually prolonged flap-like or lobe-like. This prolongation is intimately connected with the ramus on each side. This connection, of ramus and side, assumes various forms and is of taxonomic value in the separation of the species. The ramus on each side is usually produced apically into a strap-like, hook-like or spine-like process, into a strongly recurved spine or even into more complex processes (*see* figures). The ramus on each side abuts, or is joined, on to a medial or central guide-like structure (C.G.), which is not so well defined as in *Geron* and which surrounds, or into which passes, the middle part of the aedeagal complex. Towards the base on each side it may be prolonged into a blunt or flap-like process and towards the apex it may be prolonged into either a single process dorsal to aedeagus or into a prong-like attenuated blade or spine (Pr.) on each side. The middle part is very much like that of *Geron* and is ladle-like, with the attendant structures, such as lateral struts (L.Str.) and basal strut (Ba.Str.), directed inwards.

In this genus there is usually a marked sexual dimorphism, the

♀♀ having more yellowish markings on the pleurae and abdomen, paler or more yellowish femora and tibiae, no long and bushy hairs on first antennal joints, no basal, markedly knob-like thickening on first antennal joints, shorter and usually sparser pubescence on body and denser scaling. The genus can only be confused with the following genus *Pseudoamictus*, from which it differs in having a distinctly more humped thorax, more globular head, distinctly narrower part across buccal cavity, less widely separated first antennal joints, narrower genae, distinctly narrower interocular space in ♀♀, and long, impressed line of contact of eyes in ♂♂, etc. In certain respects *Amictogeron* constitutes a bridging or transitional genus between *Geron* and *Pseudoamictus*, but having more in common with the latter. In fact *Geron luctuosus* Bezz., referred to *Pseudoamictus* in this paper, is actually so close to *Amictogeron*, even in the genitalia, that it may be considered as a transitional species.

In view of the fact that *barbatus* (Bezz.) and *leptocerus* (Bezz.) are described only from ♂♂, and that the ♀-*barbatus*, from Willowmore, doubtfully belongs to the former, and that the other specimens, labelled as *barbatus* in the South African Museum, do not agree with Bezzi's description, *Amictogeron meromelanus* n. sp. is designated as the genotype.

The species of this genus, as in the case of *Geron*, are extremely difficult to distinguish externally, and in some cases differences in the structure of the hypopygium of the ♂♂ appear to be the only criteria for their separation. The following key is thus not a very satisfactory attempt to distinguish the species:—

Known ♂♂.

1. (8) Antennae with joint 1 more slender, thinner, scarcely or not thickened towards base, with very short, sparser, dark or blackish hairs, the hairs very much shorter than the joint itself; beard below head much shorter, less dense and not very conspicuous; pubescence on body much shorter; body on the whole with more extensive pale yellowish or yellowish red to brownish, the pleurae, sides of abdomen basally, the base of or entire venter, the coxae and legs and sometimes antennal joint 1 yellowish, pale yellowish red or reddish to a variable extent . . . . 2.
2. (3) Eyes contiguous above for a shorter distance, only a little more than 2 times as long as ocellar tubercle, the eye-margins themselves not in actual contact; frontal triangle larger and longer; body on the whole more extensively yellowish below, the greater part of abdomen being yellowish and the legs almost entirely very pale yellowish; wings more hyaline, not even faintly tinged cinereous or greyish, with the knobs of

halteres entirely yellowish; hypopygium (text-fig. 285) broad and compact, with the apical part directed outwards, with the ramus on each side produced into a long, conspicuous, slender, curved spine and with the spine at base of apical lappets also long and slender

bezzii n. n. (*dichromus* (Bezz.) nec Bigot) (p. 936).

3. (2) Eyes in actual contact above for a longer distance, considerably more than 2 times as long as tubercle, the eye-margins in actual contact and the line of contact much impressed; frontal triangle smaller and very much shorter; body below, though reddish, less extensively and conspicuously so, the greater part of abdomen above and towards apex being black, and the legs, on the whole, darker or not so extensively pale yellowish; wings with a very faint greyish or yellowish cinereous tinge and with the knobs of halteres sometimes darkened above; hypopygium (text-figs. 286–288) differently shaped, with the apical lappets directed backwards and with the ramus not produced into a long and slender spine, etc. . . . . 4.
4. (7) Legs on the whole darker, the coxae and femora with more brownish; venter basally also much darker; wings with the veins darker or more reddish brown, the knobs of halteres dark or dark brownish above; pubescence with more numerous intermixed darker hairs on occiput and front part of thorax; eyes in contact above for a shorter distance, not much more than 4 times as long as tubercle; hypopygium (text-figs. 286, 287) without a characteristic spined process on each side at base of apical lappets and the ramus on each side produced into a curved process, etc. . . . . 5.
5. (6) Pubescence on greater part of body below and on abdomen more gleaming sericeous or silvery whitish, that on femora, especially hind ones, predominantly whitish and with the scaling on body also more silvery; proboscis distinctly shorter, only about 2 mm. long; antennal joint 1 slightly shorter, not quite 4 times as long as 2; wings with a more distinct cinereous tinge, with the veins paler and with the discal cross vein tending to be nearer middle of discoidal cell, with the knobs of halteres entirely brown above; hypopygium (text-fig. 286) with an apically produced process dorsal to aedeagus which ends in two asymmetrical prongs, with the aedeagus not S-curved, etc.

leptocerus (Bezz.) (p. 937).

6. (5) Pubescence on greater part of body with a slightly more straw-coloured yellowish tint, that on thorax above and on scutellum more distinctly yellowish, that on hind femora towards apices darker, with the scaling on thorax and abdomen above gleaming more brassy yellowish; proboscis longer, about 3 mm. long; antennal joint 1 slightly longer, quite, or even slightly more than, 4 times as long as 2; wings more greyish hyaline, with the veins much darker, dark brownish, with the discal cross vein distinctly much beyond middle of discoidal cell and with the knobs of halteres only partly darkened above; hypopygium (text-fig. 287) without any apically produced process dorsal to the aedeagus, with the aedeagus tubular and much S-curved, etc. . *disparilis* n. sp. (p. 939).
7. (4) Legs on the whole very much paler, the coxae and femora like the tibiae very pale yellowish; venter more extensively yellowish at base; wings

with the veins much paler and more yellowish, the knobs of halteres entirely very pale yellowish; pubescence with entirely or predominantly pale hairs on occiput and thorax in front; eyes in contact above for a longer distance, more than 4 times as long as tubercle; hypopygium (text-fig. 288) with a characteristically spined process on each side at base of apical lappets and the ramus on each side produced into a flattened, strap-like process, etc. . . . . *basutoënsis* n. sp. (p. 941).
(Syn. = *leptocerus* (Bezz.) in part.)

8. (1) Antennae with joint 1 stouter, thicker, distinctly and often conspicuously thickened at base, with very dense, bushy or at least much longer black hairs, the hairs longer than, or at least subequal to, joint; beard below head very dense, bushy and very much longer and conspicuous; pubescence, though sparse, distinctly very much longer and relatively denser; body much darker, entirely or predominantly black above and below, only the legs in some cases or even only the tibiae yellowish or at least not very pale yellowish . . . . . 9.

9. (18) Antennal joint 1 distinctly longer, elongate, usually more, or much more, than 5 times as long as 2, usually less markedly or rapidly thickened at base; wings with the apical cross vein of discoidal cell longer, more oblique, more markedly S-curved . . . . . 10.

10. (17) Wings infuscated, distinctly dusky or tinged cinereous brownish, brownish or very dark smoky brownish; antennal joint 1 on the whole less markedly, or less rapidly, thickened basally; eyes in contact for a distinctly longer distance, much more than 3 times as long as tubercle; frons anteriorly narrower, the space surrounding antennal insertions narrower and smaller, the sinuosity on each side of inner eye-margins less deep; legs with the femora entirely yellowish, brownish or entirely dark . . . . . 11.

11. (14) Wings darker, very dark blackish brown or dark smoky brown, appearing almost black in certain lights; antennal joint 1 distinctly shorter, slightly more than 4, or about 5, times as long as 2, not or very slightly thickened towards base, the black hairs on it distinctly shorter, slightly less dense and less conspicuous; pubescence on body above shorter, slightly sparser; hypopygium (text-fig. 289) . . . . . 12.

12. (13) Legs entirely very dark blackish brown or black; pubescence on thorax in front, pleurae and mesopleurae entirely very dark blackish brown or black; wings apparently slightly darker . *phaeopieris* n. sp. (p. 942).

13. (12) Legs with the femora, tibiae and greater part of tarsi pale yellowish; pubescence on thorax in front, propleural parts and mesopleurae with a paler, more golden brownish or yellowish sheen in certain lights; wings apparently slightly less dark . *phaeopteris* n. sp. (var. of it) (p. 944).

14. (11) Wings slightly or distinctly less darkly tinged, more cinereous or smoky, not appearing almost black in certain positions; antennal joint 1 distinctly longer and more than 5 times as long as 2, distinctly more knob-like and thickened at base, the black hairs on it longer, denser, and more conspicuous; pubescence above distinctly longer and denser . . 15.

15. (16) Wings distinctly darker and more brownish; antennal joint 1 distinctly longer, at least 7 times as long as 2, with much longer and entirely black hairs; pubescence on abdomen distinctly more golden yellowish;

proboscis longer, about 4 mm. long; hypopygium (text-fig. 290) with a spined process on each side at bases of apical lappets, with the apical part of rami produced into a strap-like lobe and with an apically directed blade-like spine on each side dorsal to aedeagus *marshalli* n. sp. (p. 945).

16. (15) Wings less darkly tinged, more cinereous; antennal joint 1 shorter, only about 6 times as long as 2, with the hairs on it shorter and appearing more greyish; pubescence on abdomen duller, more greyish or pale yellowish grey and with more intermixed dark ones towards apex; proboscis less than 4 mm. long; hypopygium (text-fig. 291) with only a single medial short spine at base of apical lappets and a large, flattened one on each side, with the apical parts of rami produced into an outwardly directed spine and without an apically produced prong or spine on each side dorsally to aedeagus . . . . *lasiocornis* n. sp. (p. 946).
17. (10) Wings vitreous or glassy hyaline, not tinged at all; antennal joint 1 distinctly more rapidly and markedly thickened or knob-like at base; eyes in contact for a shorter distance, scarcely more than 3 times as long as tubercle; frons anteriorly distinctly broader, the space surrounding antennal insertions broader and the sinuosity on each side of antennae on inner margin of eyes deeper; legs with the bases or basal halves of femora blackened and the apical parts yellowish; hypopygium (text-fig. 292) . . . . . *dasycerus* n. sp. (p. 948).
18. (9) Antennal joint 1 shorter, not markedly elongate, usually only about 5, or less than 5, times as long as 2, more conspicuously, more markedly and more rapidly thickened or dilated, knob-like at base; wings with the apical cross vein of discoidal cell shorter, less obliquely situated and on the whole less markedly S-curved . . . . . 19.
19. (24) Antennal joint 1 distinctly stouter, thicker or even incrassate, gradually becoming very much thicker basally, with distinctly denser, finer and usually longer pubescence on it; pubescence on body as a whole much denser and more shaggy; spicules on tibiae, especially hind ones, usually more developed and more conspicuous . . . . . 20.
20. (23) Antennal joint 1 distinctly very much stouter, very broad or knob-like at base, the pubescence on it finer and denser; pubescence on thorax and scutellum above with more numerous dark or black hairs; wings with the veins paler, pale brownish or yellowish brown . . . 21.
21. (22) Wings slightly more greyish hyaline, the veins distinctly darker and more brownish, with the knobs of halteres more uniformly brownish; pubescence on antennae, occiput and thorax above more predominantly dark, with more black hairs on genae, pleurae, squamae, coxae and femora; tibiae and bases of tarsi slightly darker; antennal joint 1 slightly longer, a little longer than 5 times as long as 2; hypopygium (text-fig. 293) with long hairs on basal part, with a single stout spine medially at base of apical lappets, with the single dorsal process to aedeagus provided with a slender spine on each side arising from base of the process itself and with the apical process of ramus on each side flattened and broadened apically . . . . . *peringueyi* n. sp. (p. 950).
22. (21) Wings distinctly more subopaquely whitish in certain lights, with the veins paler and more yellowish; with the knobs of halteres paler and

more yellowish below; pubescence on antennae, occiput and especially on thorax above with more intermixed whitish or pale hairs among the more brownish ones, with the pubescence on genae, head below, body below and on abdomen entirely or predominantly white; tibiae and basal parts of tarsi distinctly paler yellowish; antennal joint 1 slightly shorter and only about 5 times as long as 2; hypopygium (text-fig. 294) with fewer and much shorter hairs on basal part, without a long and curved spine at bases of apical lappets, with the process dorsal to aedeagus ending in a dorsally directed and slightly shorter ventrally directed process and with the apical process of ramus merely curved and hook-like . . . . ? *barbatus* (Bezz.) (p. 952).

23. (20) Antennal joint 1 distinctly less stout, not so incrassate, less rapidly and less thickened at base, the pubescence on it slightly sparser; pubescence on thorax and scutellum above entirely or almost entirely whitish like that on body below; wings with the veins very much darker, dark blackish brown to black; hypopygium (text-fig. 295) *consors* n. sp. (p. 954).

24. (19) Antennal joint 1 less uniformly stout, not tending to be incrassate, more rapidly thickened and knob-like at base, with sparser and less conspicuous hairs on it; pubescence on body sparser; spicules on tibiae more feebly developed and scarcely visible in some forms . . 25.

25. (32) Pubescence on the whole sparser and shorter, that on antennal joint 1 shorter and much sparser, less bushy, predominantly whitish or very pale on body, that on head and genae below, that on pleurae, on legs and the numerous intermixed hairs on body above whitish; legs with at least the middle and hind tibiae paler, pale brownish or yellowish; hypopygium (text-figs. 281–283 and 295) with the apically produced process of ramus on each side usually recurved or directed outwards and without a subsidiary spine or process on the outside . . 26.

26. (29) Pubescence on disc of thorax entirely or predominantly pale or whitish, with very few or without any intermixed dark or blackish hairs; wings with the discal cross vein at about, or very near, the middle of discoidal cell . . . . . 27.

27. (28) Pubescence on body distinctly longer and more shaggy in appearance, that on genae, on coxae and femora longer, with the black hairs across occiput extending down behind eye-margins to head below on each side; wings with a slightly more distinct, though feeble, milky tint and with the veins darker, blackish brown or black; antennal joint 1 relatively longer and stouter, less rapidly thickened at base and with distinctly longer hairs; proboscis about 2 mm. long; legs with the middle and hind tibiae more darkened towards their apices and with all the tarsi predominantly blackish; hypopygium (text-fig. 295) with the apically directed process from ramus on each side short and hook-like and with the process dorsal to aedeagus ending in an upper and lower branch, etc. . . . . *consors* n. sp. (p. 954).

28. (27) Pubescence on body distinctly shorter, sparser and less shaggy, that on genae, coxae and femora much shorter and with the dark hairs on upper part of occiput confined to occipital part above; wings without a distinct milky whitish tint and with the veins more yellowish brown;

antennal joint 1 relatively shorter, more rapidly thickened at base and with distinctly shorter hairs; proboscis only about 1½ mm. long; legs with the tibiae sienna brownish and not darkened at their apices and basal parts of tarsi also sienna brownish; hypopygium (text-fig. 283) with the apically produced process from ramus on each side ending in a basally directed or recurved spine, with the process dorsal to aedeagus not produced apically into an upper and lower branch, etc.

anomalus n. sp. (p. 934).

29. (26) Pubescence on disc of thorax and scutellum with more numerous intermixed dark or blackish hairs, giving a blackish appearance in certain lights; wings with the discal cross vein more distinctly and constantly beyond middle of discoidal cell and with the base of second submarginal cell distinctly broader, appearing more subtruncate . . . 30.
30. (31) Tibiae much darker, the middle and hind ones brownish, dark brownish to reddish brown, the front ones almost black; proboscis slightly longer, about 2½–3 mm. long; wings with the veins even darker, with the apical cross vein of discoidal cell less S-curved, with the base of vein separating submarginal cells distinctly more rapidly bent, almost at right angles to third longitudinal vein; slightly larger species, about 3½–5 mm. long and with a wing-length of about 4–5½ mm.; hypopygium (text-fig. 281) with a prominent, recurved, central, hook-like spine at base between apical lappets, with the apically produced process of ramus on each side broader and strap-like, the aedeagus much shorter and having a more slender dorsal process . . . *meromelanus* n. sp. (p. 929).
31. (30) Tibiae much paler and more yellowish, even the front ones yellowish; proboscis slightly shorter, only about 2 mm. long; wings with the veins less conspicuously blackish, with the apical cross vein of discoidal cell distinctly more S-curved and with the base of vein between submarginal cells more gradually bent; slightly smaller form, about 4 mm. long and with a wing-length of about 4 mm.; hypopygium (text-fig. 282) without a central hook at bases of apical lappets, with the apically produced process of ramus on each side much narrower, the aedeagus longer and having the dorsal process stouter and curved and directed dorsalwards . . . . . *karooanus* n. sp. (p. 933).
32. (25) Pubescence comparatively longer and denser, that on antennal joint 1 long, dense and more conspicuous, that on occiput, genae, head below, on thorax above, on scutellum and on femora predominantly black; legs almost entirely dark, even the tibiae appearing very dark reddish or blackish brown; hypopygium (text-fig. 284) with the apically produced process from ramus on each side almost straight and sharply pointed and having an outwardly directed subsidiary spine or process

fuscipes n. sp. (p. 935).

Known ♀♀.

1. (6) Wings distinctly more darkly infuscated, tinged brownish, very dark blackish brown or smoky brown and slightly more so towards base . 2.
2. (3) Antennal joint 1 distinctly shorter, only a little more than 4 or 5 times as long as 2, scarcely, or not, thickened at base and with the blackish

hairs on it shorter, less dense and less conspicuous; pubescence on body on the whole sparser and shorter, that on abdomen with more numerous short dark ones in addition to the short pale ones and the brassy scaling; femora tending to be more extensively darkened above and apically; wings distinctly slightly darker, more blackish brown or dark brownish . . . . . *phaeopteris* n. sp. (p. 942).

3. (2) Antennal joint 1 distinctly longer, quite 6 or 7 times as long as 2, distinctly more visibly thickened at base and with the hairs on it longer, denser and more conspicuous; pubescence on body denser and longer, without any or very much fewer short dark hairs on abdomen above; femora and tibiae more extensively yellowish, only the apices less extensively darkened; wings distinctly less darkly infuscated . . . . 4.

4. (5) Antennal joint 1 distinctly longer, at least 7 times as long as 2, with longer hairs on it especially below; propleurae, greater part of pleurae, sides broadly of the dark scutellum, greater part of venter and the coxae predominantly yellowish brown; fine hair-like scaling and the short hairs on body above, especially abdomen, deeper golden yellowish; wings slightly more distinctly brownish; proboscis longer, about 4 mm. long . . . . . *marshalli* n. sp. (p. 945).

5. (4) Antennal joint 1 shorter, only about 6 times as long as 2, with slightly shorter hairs on it; pleurae darker, only the sclerite above front coxae, hind part of metapleurae, last tergite and lobes of segment 8 below yellowish, the front coxae obscurely yellowish, without any yellow on sides of the more ferruginous scutellum; fine scaling and short hairs on abdomen paler and more sericeous or pale brassy; wings slightly less brownish; proboscis shorter, only about 2 mm. long *lasiocornis* n. sp. (p. 946).

6. (1) Wings vitreous or glassy hyaline or greyish hyaline and, if tinged, then only very faintly and scarcely perceptibly cinereous greyish, but without any distinct dark tint . . . . . 7.

7. (18) Legs with the femora, or at least middle and hind ones as well as the coxae to a variable extent entirely or predominantly yellowish; humeral angle on each side and to a certain extent the anterior spiracular area distinctly or conspicuously pale yellowish and the metapleural parts usually more extensively or more yellowish . . . . . 8.

8. (11) Pubescence on body sparser, shorter and less shaggy, that on first antennal joints shorter, very much sparser, that on occiput, head below, abdomen and coxae sparser, shorter and less conspicuous; antennal joint 1 slender, not even slightly thickened at base and usually yellowish; knobs of halteres entirely yellowish; body below more extensively yellowish, the greater part of metapleurae, the entire coxae, legs and venter being paler yellowish . . . . . 9.

9. (10) Wings with the veins very much darker, blackish brown, with the discal cross vein very much beyond middle of discoidal cell; yellow colouring on body slightly less developed, the scutellum being entirely black and greater part of tarsi dark; frons with a more distinct, central, longitudinal depression anteriorly; proboscis black and slightly longer. about 3 mm. long . . . . . *disparilis* n. sp. (p. 939).

10. (9) Wings with the veins much paler yellowish or pale reddish brown, with

the discal cross vein at about middle of discoidal cell; yellow colouring on body below more developed, the sides of scutellum also tending to be reddish brown and greater part of tarsi also yellowish; frons more transversely depressed anteriorly; proboscis tending to brownish or yellowish brown, slightly shorter and only about 2½ mm. long *basutoënsis* n. sp. (p. 941).

11. (8) Pubescence on body slightly denser or much denser, slightly longer and more shaggy in appearance, that on first antennal joints distinctly much denser, longer and more shaggy, that on occiput, head below, abdomen and coxae denser, longer and more conspicuous; antennal joint 1 stouter and more often tending to be distinctly thickened at base and usually entirely dark or black; knobs of halteres darkened or dark brownish above; body below less extensively yellowish, the greater part of metapleurae, coxae and venter being darker and with the legs sometimes darkish . . . . . 12.

12. (15) Antennal joint 1 longer and more slender, at least 5 times as long as 2 and with a distinctly less shaggy pubescence, which is not entirely black; proboscis distinctly longer, about 3–3½ mm. long; pubescence on the whole tending to be shorter, especially on occiput, head below, front coxae and on mesopleuron . . . . . 13.

13. (14) Wings very faintly, but distinctly, more dusky or tinged cinereous, with the veins darker and more blackish brown and with the second submarginal cell more narrowed basally; face with a yellowish macula in front and the inside of buccal rims also yellowish, the sides of scutellum broadly reddish brown, the venter with much broader yellowish hind margins, the front femora darker or even blackish and the apices of the hind ones also blackened; pubescence on the whole slightly less dense *cheilicterus* n. sp. (p. 938).

14. (13) Wings vitreous hyaline, with the veins slightly paler brownish and with the second submarginal cell distinctly more truncate at base; face not yellow in front and the inside of buccal rims not yellow, the scutellum entirely black, the venter with much narrower yellowish hind margins, the front femora more brownish and hind ones entirely yellowish; pubescence on the whole denser . . . . *waltoni* n. sp. (p. 957).

15. (12) Antennal joint 1 shorter and distinctly much stouter, tending to be more distinctly thickened at base and with distinctly longer and very much denser pubescence, especially below, the hair being entirely or predominantly black; proboscis distinctly shorter, only about 2 mm. long; pubescence on the whole distinctly denser and more shaggy in appearance, especially on occiput, head below, front coxae and mesopleuron . . . . . 16.

16. (17) Antennal joint 1 slightly, but distinctly, more thickened at base; middle and hind coxae and greater part of venter predominantly or entirely dark, the tibiae paler yellowish and middle and hind femora with their apices blackened above; pubescence with the hairs at base of abdomen on sides of tergite 1 more silvery whitish and the scaling above more brassy or sericeous yellowish . . . *capicolus* n. sp. (p. 955).

17. (16) Antennal joint 1 slightly more slender and not so visibly thickened at base; all the coxae, metapleural part, sides of tergites 1 and 2 and base

of venter as well as apex of abdomen yellowish red, the tibiae slightly darker and femora not so distinctly darkened above apically; pubescence with the hairs at base of abdomen on sides more sericeous yellowish and the scaling above deeper golden yellowish

montanus n. sp. (p. 956).

18. (7) Legs with all the femora and coxae black, only the extreme apices of the femora may be obscurely brownish; humeral angle dark or black and metapleural part also less distinctly yellowish and even entirely black 19.

19. (20) Wings very faintly dusky, due to a very faint greyish cinereous tinge, with the discal cross vein not much beyond middle of discoidal cell, with the apical cross vein of discoidal cell more S-curved and joining fourth longitidunal vein nearly opposite base of vein separating submarginal cells, with the knobs of halteres only slightly brownish above; antennal joint 1 distinctly shorter, only about 3 times as long as 2; posterior edge of metapleural plate and base of venter more distinctly yellowish red . . . . . *nigrifemoris* n. sp. (p. 931).

20. (19) Wings vitreous hyaline, with the discal cross vein more distinctly beyond middle of discoidal cell and with the apical cross vein of discoidal cell tending to be less markedly S-curved and joining fourth longitudinal vein more towards centre of wing, with the knobs of halteres much darker and even very dark blackish brown above; antennal joint 1 slightly longer, about $3\frac{1}{2}$–4 times as long as 2; base of venter at least not conspicuously yellowish red, usually very dark or even entirely blackish 21.

21. (22) Wings with the veins much darker and dark blackish brown or black; legs with the tibiae distinctly darker, dark reddish brown to obscure ferruginous brownish, the front ones predominantly dark or black and with all the femora entirely black; antennal joint 1 with entirely or predominantly black hair above and below

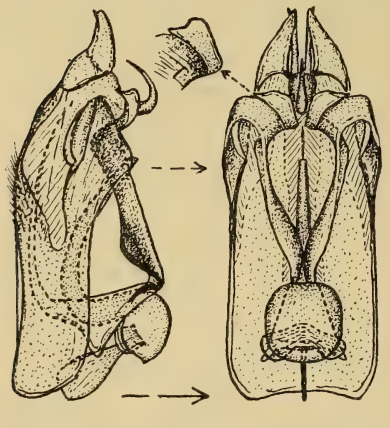
meromelanus n. sp. (p. 929).

22. (21) Wings with the veins more brownish; legs with all the tibiae paler and more distinctly yellowish and with the hind femora also slightly yellowish or yellowish brown below; antennal joint 1 with predominantly or more numerous pale hairs above . . . . *namaënsis* n. sp. (p. 932).

9 ♂♂ 12 ♀♀ *A. meromelanus* n. sp.

Body black; extreme front part of face and inside of buccal rims more or less obscurely pallid to yellowish; a small obscure spot on each side above front coxae in both sexes, the sutural parts of metapleurae obscurely, sometimes the hind edge of metapleural plate, the extreme base of venter, the hind margins of apical sternites, the ventral lobes on segment 8 and genital segment in ♀♀ also yellowish; legs with the coxae and femora in both sexes entirely black, the front tibiae also very dark or black, the middle and hind ones yellowish brown, dark brownish or reddish brown to very dark

brownish, becoming dark at apices and even tending to be entirely very dark in some specimens, with the tarsi almost entirely dark only the bases obscure reddish brown or brownish, less so in some specimens; pubescence not very dense, on the whole longer and more shaggy in ♂♂, especially on first antennal joints, thorax above and on abdomen, that on occiput, genae, head below, mesopleural part, coxae and abdomen longer than on rest of body in both sexes, predominantly white, giving the insects a hoary or greyish appearance, that on body below entirely white, that on antennae in both sexes, the short rows of bristly hairs on frons in ♀♀, the hairs on ocellar tubercle in both sexes, the longish hairs behind eye-margins on occiput in ♂♂, the shorter ones in ♀♀, the intermixed hairs on disc of thorax and scutellum in ♂♂, the much shorter and apparently denser intermixed ones on thorax of ♀♀, the slightly longer intermixed ones on scutellum in ♀♀ and the longish bristly hairs across hind margins of tergites 8 and 9 in ♀♀ black, with the scaling on body above fine, not very dense, apparently slightly denser in ♀♀, gleaming almost silvery whitish but with feeble pale brassy gleams, more so on abdomen above and even more yellowish on abdomen above in ♀♀, that on pleurae and venter sericeous whitish and much denser on venter in both sexes, the scaling on legs silvery whitish, appearing very slightly more yellowish on tibiae in certain lights and with the very fine hairs and the spicules on tibiae dark or blackish, with the pale hairs on sides of thorax in front of wings in ♀♀ having slight sericeous yellowish gleams in certain lights; wings glassy hyaline, iridescent, with the costal part and base slightly subopaquely milky whitish, with the apical part of supernumerary cell in costal cell yellowish, with the veins very dark, blackish brown to black, very dark even at extreme base of wings, with only the supernumerary vein in costal cell more yellowish, with the discal cross vein distinctly a little beyond middle of discoidal cell, with the apical cross vein of discoidal cell on the whole not very markedly S-curved and with the



Text-fig. 281.—Side and ventral (dorsal) views of hypopygium of ♂ *Amictogeron meromelanus* n. gen. and n. sp.

second submarginal cell somewhat truncate basally, its upper vein rather rapidly bending down at base to join third longitudinal vein, with the squamae subopaquely whitish or subpellucid and fringed with whitish hairs; halteres pallid or yellowish, their knobs yellowish below and very dark brownish or blackish brown above in both sexes. *Head* with the eyes in contact above in ♂♂ for a distance about 3½–4 times as long as ocellar tubercle (front view), with the line of contact impressed; interocular space on vertex in ♀♀ only a very little broader than tubercle; frons in ♀♀ gradually diverging anteriorly, medially depressed in front, small, triangular and somewhat depressed in ♂♂; face slightly convex medially but not very prominent; antennae with joint 1 distinctly broadened or thickened at base in ♂♂, more slender and not or scarcely perceptibly broadened at base in ♀♀, with very much longer bristly hairs above and below in ♂♂, quite 4 times as long as 2 in both sexes, with 3 almost rod-like, only gradually tapering apically, but more so at apex; proboscis about 2½–3 mm. long; palps slender. *Hypopygium* of ♂ (text-fig. 281) without long hairs on dorsum of basal part, with a prominent, recurved, hook-like spine at base of lappet-like apical processes; ramus on each side from basal part produced on inner side apically into an outwardly directed pointed strap-like process (*see* middle figure); aedeagus rather shortish, its dorsal apically produced process (shown in outline in left-hand figure) thinning out apically.

Types in the South African Museum.

Length of body: about 3½–5 mm.

Length of wing: about 4–5½ mm.

Locality.—Nieuwveld Karoo: Beaufort West Distr. (Mus. Staff, Nov. 1935) (Types); Fraserburg Distr.; Teekloof (The Escarpment) (Mus. Staff, Nov. 1935).

These insects were caught settling on the flowers of Mesembryanthemums.

1 ♀ *A. nigrifemoris* n. sp.

This single ♀ and the following species, as well as *meromelanus*, are distinguished from the ♀♀ of other species, with non-infuscated wings, by having entirely or predominantly black femora.

Body black; metapleural part only slightly yellowish; sides of tergite 1, base of venter and the apical parts of venter also yellowish; legs dark blackish brown or black, with only the extreme apices of femora and the tibiae brownish, the tarsi dark; pubescence with the

short, erect hairs on occiput, frons, first antennal joints, thorax above, scutellum, and at apex of abdomen blackish, those on head below and on entire body below white, those on abdomen also whitish, with the fine scaling above, especially on abdomen, brassy yellowish, denser on venter and more silvery whitish, the scaling on legs whitish; wings very feebly cinereous, the veins dark blackish brown, with the discal cross vein a little beyond middle of discoidal cell, the apical cross vein of discoidal cell unsymmetrically S-curved and joining fourth longitudinal vein almost opposite base of the vein separating the submarginal cells, with the latter vein gradually bent down to third longitudinal vein; halteres with the knobs slightly brownish above. *Head* with the first antennal joint comparatively short for this genus and only about 3 times as long as 2 and with the hairs on it also relatively short.

Type in the British Museum.

Length of body: about 4 mm.

Length of wing: about 4 mm.

Locality.—Southern Karoo: Michell's Pass (Simmonds, 1–5/12/1930).

1 ♀ *A. namaënsis* n. sp.

This ♀ differs from *nigrifemoris* in having entirely clear hyaline wings, with the discal cross vein more beyond middle of discoidal cell and the S-curved apical cross vein of discoidal cell normally situated as in the majority of species, in having very much paler and more yellowish tibiae, distinctly longer first antennal joints, which are more than 3 times as long as second joints, in having denser pubescence and scaling on abdomen, especially on sides and on venter, denser and slightly longer hairs on coxae, with some whitish hairs on frons in front and also in having some pale hairs on antennal joint 1 above, with the knobs of halteres extensively dark blackish brown above. It is even closer to the ♀ of *meromelanus*, from which it differs in having the tibiae paler and even the hind femora slightly yellowish brown below, in having the veins in wings slightly paler, more brownish and in having numerous pale hairs on antennal joint 1 above.

Type in the Imperial Institute.

Length of body: about 5 mm.

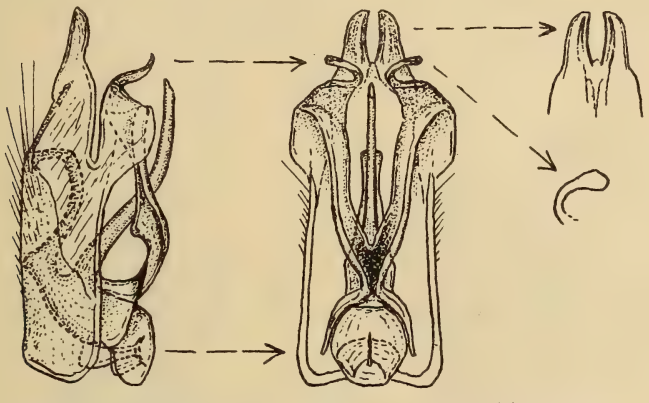
Length of wing: about 5 mm.

Locality.—Namaqualand: Nieuwoudtville (Cockerell, 18–22/11/1931).

1 ♂ *A. karooanus* n. sp.

This somewhat damaged specimen is also near *meromelanus*.

Body entirely black; legs with the coxae and femora black, the tibiae pale yellowish brown; pubescence on disc of thorax, on scutellum, occiput above and the long hairs on antennal joint 1 black, those on antennal joint 1 not very dense but very long towards base, with the longish hairs on genae, the hair on head below, those



TEXT-FIG. 282.—Side and ventral (dorsal) views of hypopygium of ♂ *Amictogeron karooanus* n. sp.

on sides of head behind eyes, intermixed ones on sides of thorax and above, and all those on coxae, pleurae and on abdomen white, only a few towards apex of abdomen blackish, with the hairs on femora appearing more brownish in certain lights, with the fine scaling on abdomen above pale brassy, denser and more silvery on venter and sides, that on legs also whitish; wings hyaline, iridescent, with the veins very dark brown, with the discal cross vein much beyond middle of discoidal cell, with the apical cross vein of this latter cell unsymmetrically S-curved; halteres with the knobs yellow below and dark above. *Head* with the eyes in contact above for a long distance; antennae with joint 1 only slightly thickened at base and quite 4 times as long as 2; proboscis about 2 mm. long. *Hypopygium* (text-fig. 282) with a slender outwardly curved process on each side at apical part of ramus from each side of basal part; aedeagus long, its dorsal process not projecting apically, but recurved dorsalwards (shown in dotted outline in left-hand figure); base between apical lappets without any distinct spine or spines process.

Type in the Imperial Institute.

Length of body: about 4 mm.

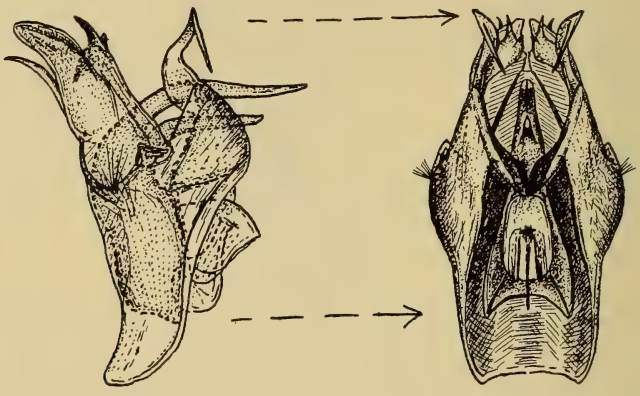
Length of wing: about 4 mm.

Locality.—Karoo: Graaff-Reinet (Ogilvie, 24–27/10/1931).

From *meromelanus* this species differs in being slightly smaller, in having a slightly shorter proboscis, paler tibiae and a different type of hypopygium.

1 ♂ *A. anomalus* n. sp.

Body black; legs with the coxae and femora black, the tibiae reddish brown, the front ones darker, with the bases of the tarsi also brownish; pubescence on the whole sparse, predominantly pale or whitish above



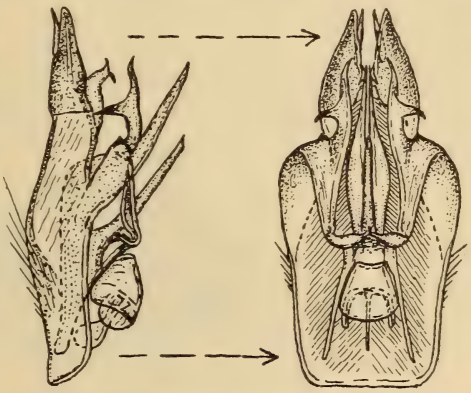
TEXT-FIG. 283.—Side and ventral (dorsal) views of hypopygium of ♂ *Amictogeron anomalus* n. sp.

and below, only the longish hairs on first antennal joints, on ocellar tubercle and sparse ones across occiput black; wings greyish hyaline, iridescent, with the veins pale yellowish brown, becoming darker and even blackish brown at base, with the discal cross vein at about the middle of discoidal cell, with the apical cross vein of discoidal cell not strongly S-curved, with the upper vein of second submarginal cell not very rapidly bent to meet third longitudinal vein; halteres yellowish, with the knobs deep dark brownish above and yellowish below. *Head* with the eyes in contact above for a long distance; antennae with joint 1 about 4 times as long as 2, with 3 rather stoutish; proboscis relatively short, about 1½ mm. long. *Hypopygium* (text-fig. 283) with a distinct spined process present on each side nearer midline ventrally at base of apical lappet-like lobes; apically produced part of ramus on each side recurved basalwards ending in a slender spine; dorsal process dorsal to aedeagus composed of two contiguous blade-like processes.

Type in the British Museum.
Length of body: about 4 mm.
Length of wing: about 4 mm.
Locality.—Southern Karoo: Montagu (Turner, 23–30 Sept. 1924).

1 ♂ *A. fuscipes* n. sp.

Body entirely black; legs very dark, with the coxae and femora also black, the tibiae and tarsi scarcely less dark, very deep dark blackish brown; pubescence entirely black on head, thorax above and on scutellum, that on abdomen slightly sparser than on front part of body, predominantly straw-coloured whitish, more whitish on venter, with some scattered blackish intermixed hairs discally above on abdomen and distinct black hairs towards apex, with the black hairs on antennal joint 1 long and dense, bushy, those on upper part of occiput also long, those on genae also long, black and dense, with some hairs on sides of thorax, above wing-bases, straw-coloured, with the hairs on pleural parts and on coxae more or less straw-coloured, those on femora black, with very sparse pale or pale brassy scaling indicated on thorax and abdomen; wings vitreous hyaline, with the veins very dark blackish brown or almost black, with the apical cross vein of discoidal cell much S-curved, unsymmetrical and with the discal cross vein at about the middle of discoidal cell; halteres with the knobs dark blackish brown above. *Head* with the eyes in actual contact for a distance quite 5 times as long as ocellar tubercle; antennae with joint 1 thickened or knob-like at base, a little more than 4 times as long as 2, with 3 slender, rod-like, very slightly thicker basally than apically; proboscis about 2 mm. long. *Hypopygium* (text-fig. 284) with the apical spine-like produced part of ramus on each side longish and having an outwardly directed subsidiary spine or prong and the



Text-fig. 284.—Side and ventral (dorsal) views of hypopygium of ♂ *Amictogeron fuscipes* n. sp.

common base of the contiguous apically directed prongs on each side above aedeagus much broadened.

Type in the South African Museum.

Length of body: about 4½ mm.

Length of wing: about 4½ mm.

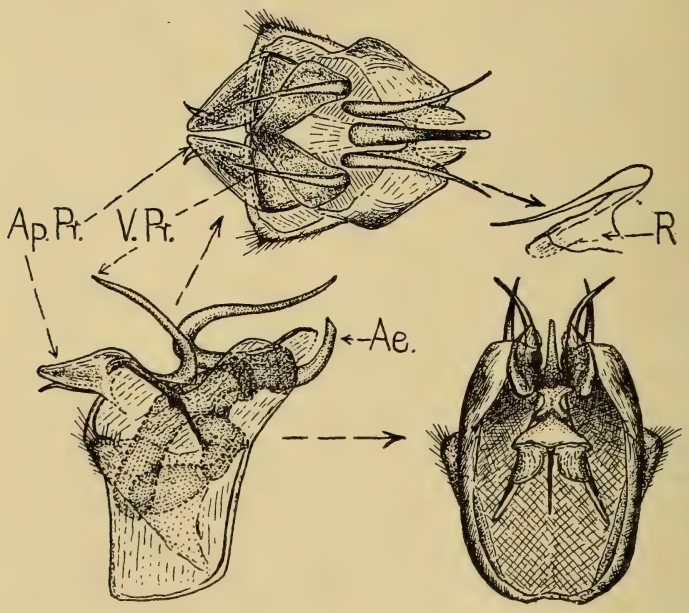
Locality.—Southern Karoo: Michell's Pass (Mus. Exp., Oct. 1934).

Easily recognised by its dense black hair on first antennal joints, genae and thorax above, and dark, almost entirely black, legs.

A. bezzii n. n. (*dichromus* (Bezz.) nec Bigot).

(P. 101, Ann. S. Afr. Mus., vol. xviii, 1921.)

As this single ♂-specimen does not agree at all with Bigot's description of *Geron dicroma* (p. 374, Ann. Soc. Ent. Fr., vol. lxi, 1892) and



Text-fig. 285.—Side, apical and ventral (dorsal) views of hypopygium of ♂ *Amictogeron bezzii* n. n. (*dichromus* (Bezz.) nec Bigot).

as it does not belong to *Geron*, a new name for it is essential. Bigot examined and described a ♀-specimen as questionably coming from the Cape. Bezzi, on the other hand, described this ♂ fairly fully, making it easily recognisable. There is no doubt that it belongs to *Amictogeron*, as defined in this paper, and it is distinguished from all other ♂♂

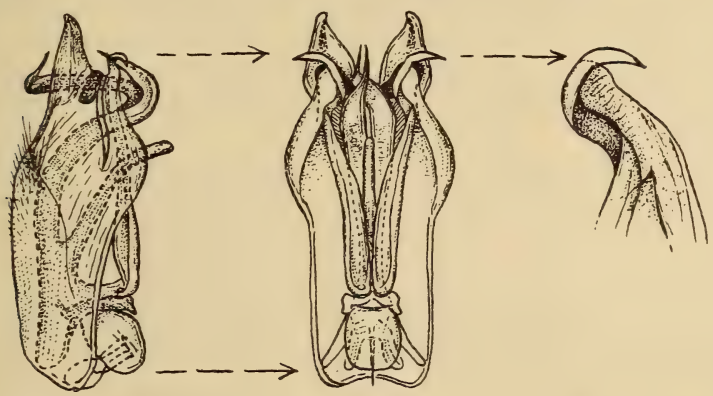
of this genus by the predominantly yellowish abdomen, only the dorsum of which is dark, by the extensively yellowish metapleurae, predominantly yellowish coxae and legs, the yellowish first antennal joints and the comparatively large frons, the actual inner margins of the eyes being only contiguous for a short distance, only a little more than 2 times the length of ocellar tubercle. The *hypopygium* (text-fig. 285, lateral, ventral and apical views) with the basal part compact, with the apical lappets (Ap.Pr.) vertical to longitudinal axis, with the plate on each side, obliquely at base of each apical lappet, produced into a long dorsally directed spine (V.Pr.); ramus (R.) connecting aedeagal complex (in dotted outline in left-hand figure) on each side of side of basal part also produced into a ventrally directed spine; aedeagus (Ae.) without a dorsal process or prong; middle part with the basal strut comparatively large and racket-shaped.

Locality.—S.W. Africa: Great Namaqualand.

A. leptocerus (Bezz.).

(P. 100, Ann. S. Afr. Mus., vol. xviii, 1921.)

Bezzi based his description of this species on a ♂-specimen from the Eastern Transvaal and a somewhat damaged ♂ from Basutoland. A



Text-fig. 286.—Side and ventral (dorsal) views of hypopygium and view of recurved apical process of ramus of ♂ *Amictogeron leptocerus* (Bezz.).

careful comparison of the two specimens, however, shows that only the ♂-type from the Transvaal belongs to this species; the other specimen being an entirely different species. The ♂ of *leptocerus* is chiefly characterised by the slender first antennal joints, which have only very shortish dark hairs on them, by the slender and rod-like

third antennal joints, the comparatively shortish white beard, the distinctly cinereously-tinged wings with reddish brown veins, by its yellowish brown legs of which the apical parts of the femora are slightly darkened and by the eyes which are in actual contact for a distance at least 4 times as long as ocellar tubercle. *Hypopygium* (text-fig. 286) is peculiar in that the apically produced prong or blade (in dotted outline) on each side from the central guide-like part and above the aedeagus is unsymmetrical, the right one being longer, slightly flattened and directed dorsalwards between the bases of the apical lappet-like lobes of basal part and ending in a recurved spine whereas the left one is much shorter; ramus on each side (*see* also figure to the right) is apically produced together with side of basal part into an outwardly directed curved spine.

Length of body: about 5 mm.

Length of wing: about 6 mm.

Length of proboscis: about 2 mm.

Locality.—Eastern Transvaal: Barberton (Edwards, Dec. 1911).

2 ♀♀ *A. cheilicterus* n. sp.

These two specimens may prove to represent the female sex of *leptocerus*. One ♀ was actually taken at the same locality and by the same collector. Certain characters, however, even for ♀♀, appear to exclude specific identity with the ♂-type of *leptocerus* and provisionally the specimens are referred to a separate species showing the following characters:—

Body predominantly black; face medially and inside of buccal rims yellow; the humeral angle and anterior spiracular area below it on each side, a spot below wings, the hind part of metapleurae, the sides of tergite 1, the hind margins of sternites, the hind margins laterally of tergites towards apex of also hind margins of last two tergites also yellowish; posterior calli and sides of scutellum broadly, infusions to pleurae and even to a certain extent the sides of abdomen near base more or less reddish brown or ferruginous; legs with the coxae also yellowish brown to ferruginous, the front coxae being paler and more yellowish, with the front femora very dark or blackish brown, the middle and hind ones paler and more yellowish, only darkened apically, with the front tibiae and tarsi very dark blackish brown or almost black, the middle and hind tibiae yellowish like their femora, but also darkened apically, their tarsi also darkened; pubescence short and rather dense, predominantly whitish, that on head below

and body below entirely whitish, that on first antennal joints darkish, appearing brownish in certain lights, that on frons with brownish golden gleams, that on ocellar tubercle and across occiput blackish, more yellowish to rufous lower down on occiput and more whitish towards its sides, that on thorax above brownish to blackish brown but those on sides appearing paler with more pale yellowish or brownish golden gleams in certain lights, the bristly hairs on scutellum dark, pubescence on abdomen above as below predominantly whitish, the bristly hairs across hind margins of tergites 7–9, however, blackish brown, with the fine scaling on body and abdomen above rather dense, gleaming pale sericeous yellowish, slightly more yellowish discally on thorax and more silvery on sides, that on abdomen above denser and distinctly more golden, becoming paler towards apex, that on venter even denser and on the whole more whitish, that on legs whitish; wings faintly, but distinctly dusky, having a slight yellowish cinereous tinge, with the veins brownish to dark brownish, paler and more yellowish brown at extreme base, with the discal cross vein at about middle of discoidal cell, with the alula very narrow and axillary lobe also narrowish, with the squamae subopaquely subpellucid and fringed with whitish hairs; halteres yellowish, with the knobs yellowish below and deep dark brownish above. *Head* with the interocular space on vertex scarcely, or only very slightly, broader than ocellar tubercle; frons gradually diverging anteriorly and slightly transversely depressed anteriorly; face somewhat convex medially; antennae with joint 1 rather long, quite 5 times as long as 2, distinctly, though very slightly, thicker at base, the pubescence short, but dense, with joint 3 long, slender, the apical part tapering to a point; proboscis about 3–3½ mm. long.

Type in the South African Museum.

Length of body: about 5–6 mm.

Length of wing: about 6–6½ mm.

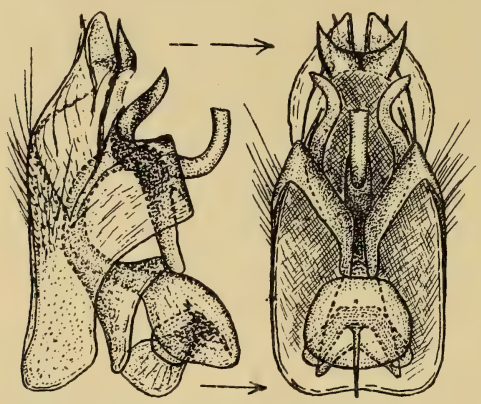
Locality.—E. Transvaal: Barberton (Edwards, Dec. 1911) (Type). E. Cape Province: Toise River (Munro, 20/11/23) (Transvaal Museum).

The longer first antennal joints, much longer proboscis, much darker anterior femora and tibiae and much darker wing-venation seem to exclude it as the ♀ of *leptocerus* Bezz.

1 ♂ 1 ♀ *A. disparilis* n. sp.

Body black; antennal joint 1 in ♀, the humeral angle, the posterior calli, the sutural parts of the pleurae, the hind part of metapleurae

and greater part of venter in both sexes, the sides broadly of basal part of abdomen in ♀ and the hind margins and sides of tergites towards apex in ♀ as well as apical part of abdomen in ♀ pale reddish brown to yellowish brown, paler in ♀; legs with the coxae brownish in ♂, paler and more yellowish in ♀, with the femora and tibiae pale yellowish in ♀, slightly more brownish in ♂, the front femora darkened in ♂ and only so above in ♀, with the greater part of tarsi darkened in both sexes, the apical parts even blackish; front part of face in ♀ ivory yellowish; pubescence predominantly pale, pale straw-coloured yellowish on body below and on pleurae, that on abdomen in ♂ appearing whiter especially on venter, that on thorax above distinctly more yellowish, that towards base of thorax and on scutellum distinctly deeper yellowish, subgolden, with intermixed dark or blackish hairs on disc of thorax in both sexes, with intermixed blackish and yellowish hairs on occiput and dark hairs on first antennal joints, with the hairs on head below more silvery whitish, with the scaling on body above gleaming very pale brassy, paler in ♂, even more golden on thorax in front in ♀ and to a certain extent also in ♂; wings greyish hyaline, but with a very faint, scarcely perceptible cinereous or yellowish tinge, with the veins dark brownish to blackish brown, paler and more yellowish brown at base, with the discal cross vein much beyond middle of discoidal cell, with the squamae pellucid; halteres with the knobs entirely very pale yellowish in ♀, yellowish below but slightly blackish brown towards outer side above in ♂. *Head* with the eyes in contact above in ♂ for a distance about 4 times as long as ocellar tubercle, the line of contact impressed; interocular space in ♀ though appearing narrow on vertex is really quite $1\frac{1}{2}$ times as broad as narrow tubercle; frons in ♀ rather narrow and only gradually diverging anteriorly, centrally distinctly longitudinally depressed in apical half; face also narrow in ♀; antennae longer in ♂ than in ♀, with joint 1 in ♂ also relatively longer than in ♀,



Text-fig. 287.—Side and ventral (dorsal) views of hypopygium of ♂ *Amictogeron disparilis* n. sp.

quite 4 times as long as 2, only a little more than 3 times as long as 2 in ♀, with 3 also longer and more gradually pointed in ♂; proboscis slender, about 3 mm. long; palps slender. *Hypopygium* of ♂ (text-fig. 287) with the lateral ramus on each side from basal part produced apically into a curved prong; aedeagus tubular and markedly S-curved and apparently without a dorsal apically directed prong or process.

Types in the South African Museum.

Length of body: about 5–5½ mm.

Length of wing: about 5½–6⅓ mm.

Locality.—Nieuwveld Karoo: Fraserburg Distr.; Teekloof (Mus. Staff, Nov. 1935).

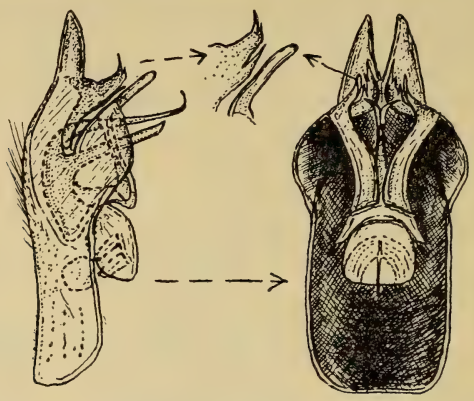
This species resembles *leptocerus* (Bezz.) very closely, but differs in having slightly more straw-coloured yellowish pubescence on body below, more yellowish hairs on base of thorax and scutellum, less distinctly cinereous wings and entirely different hypopygium. From *cheilicterus* the ♀ differs in having shorter and yellowish first antennal joints, with much shorter and sparser pubescence on them, in having more extensive yellow on body below and legs, etc.

1 ♂ 1 ♀ *A. basutoënsis* n. sp.

(Syn. = *leptocerus* (Bezz.) in part.)

The ♂, which Bezzi referred to *leptocerus* (p. 100, Ann. S. Afr. Mus., vol. xviii, 1921), and a ♀ from the same locality apparently belong to one and the same species, which is entirely different from *leptocerus*. From this latter species and *cheilicterus* it is distinguished by having clearer and more hyaline wings, with much paler and more pale yellowish brown to pale brownish veins, entirely yellowish knobs to the halteres, much more extensively yellowish body below in ♀, the entire venter being yellow in the ♀, by having all the coxae and legs paler yellowish in both sexes, the femora not darkened apically and the tibiae also paler, by having no reddish on sides of scutellum in ♀, yellowish first antennal joints in ♀, the eyes in contact in ♂ for a slightly longer distance, more than 4 times as long as ocellar tubercle, the fine scaling distinctly more yellowish and in ♀ at least more golden on abdomen above and the erect pubescence on thorax and scutellum in both sexes less dark. *Hypopygium* of ♂ (text-fig. 288) has a spined process (see middle figure) on each side near centre at base of apical lappet-like lobes; ramus on each side, which joins side

of basal part on to aedeagal complex, is produced apically into a strap-like process; central guide-like part, joined on to bases of rami,



TEXT-FIG. 288.—Side and ventral (dorsal) views of hypopygium of ♂ *Amictogeron basutoënsis* n. sp.

produced on each side apically and above aedeagus into a long, stylet-like process, the apices of which are directed outwards.

Types in the South African Museum.

Length of body: about 4–5 mm.

Length of wing: about $4\frac{1}{2}$–$5\frac{1}{2}$ mm.

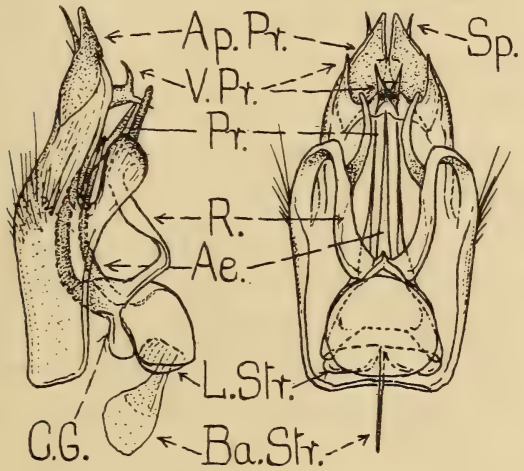
Length of proboscis: about $2\frac{1}{2}$ mm.

Locality.—Basutoland: Likhoele (Dieterlin).

5 ♂♂ 5 ♀♀ *A. phaeopteris* n. sp.

Body black; genae to a certain extent, the humeral part on each side, the propleural part above each front coxa, a faint band across pleurae to, and including, metapleural parts, sides of abdominal segment 8 and the dorsum of 9 in ♀♀ yellowish; legs with the coxae and trochanters black in ♂♂, the coxae more brownish in ♀♀, the femora entirely very dark, blackish brown and even black in ♂♂, slightly paler and more brownish in ♀♀, darkened above apically in ♀♀, with the tibiae yellowish brown to dark brown, the tarsi blackish for the greater part, with the spicules and spines on tibiae and tarsi black; pubescence with the erect hairs longer and denser in ♂♂, those on thorax above, on pleurae, on coxae and femora below in ♂♂ entirely black, those on pleurae, coxae and legs in ♀♀ whitish, those on thorax and scutellum in ♀♀ sparse and blackish brown, those on abdomen in ♂♂ gleaming golden brownish or yellowish or even

sericeous yellowish in certain lights (especially from behind), those towards apex black, those on abdomen in ♀♀ very much shorter, predominantly whitish to sericeous whitish, but with dark ones discally and on segments 8 and 9, with the hairs on occiput, head behind, on first antennal joints, on genae and head below in ♂♂ entirely black, those on antennal joint 1 very long, dense and bushy, those on genae long and projecting forward brush-like, those on head in ♀♀ very much shorter and also much shorter on first antennal joints, those



Text-fig. 289.—Side and ventral (dorsal) views of hypopygium of ♂ *Amictogeron phaeopteris* n. sp.

on occiput brownish, those on frons along middle and on the antennae black, those on genae fine and sparse and whitish like those on head behind eyes and on head below, with fine, long blackish hairs on femora in ♂♂ and very sparse, much shorter, pale or whitish ones in ♀♀, with the fine, depressed scaling sparse on thorax, denser on scutellum and abdomen above in ♀♀, almost confined only to abdomen in ♂♂, brassy yellowish to golden, sometimes deeper golden on abdomen above, paler on sides and silvery whitish on venter; wings darkly and often very darkly infuscated, very dark smoky brownish, the brown tinge predominating, the costal part slightly darker, with the veins very dark blackish brown to black, with the discal cross vein just, or a little more, beyond middle of discoidal cell, with the apical cross vein of the latter much S-curved and lying almost parallel with hind margin of wing, the upper part of discoidal cell thus elongate and lobe-like, with the second submarginal cell very

elongate, its upper and lower veins almost parallel, only gradually diverging apically, with the alula very narrow, with the squamae slightly brownish and fringed with blackish hairs in ♂♂, slightly more yellowish or whitish fringed in ♀♀; halteres yellowish brown in ♂♂, slightly more yellowish in ♀♀, with the upper part of knobs extensively dark blackish brown in both sexes. *Head* with the eyes in contact above in ♂♂ for a comparatively long distance, at least 5 times as long as ocellar tubercle, the line of contact very deep; interocular space in ♀♀ on vertex only a little broader than tubercle, the inner margins of eyes gradually diverging anteriorly; antennae with joint 1 elongate, quite 5 times as long as 2 in ♂♂, appearing a little shorter in ♀♀, distinctly, though only very slightly, thickened towards base, with 3 slender, longer than 1 and 2 combined, only gradually tapering apically; proboscis about 1½–2 mm. long in ♀♀ and 2–3 mm. long in ♂♂. *Hypopygium* of ♂ (text-fig. 289) with the apical lappet-like lobes (Ap.Pr.) of basal part provided with a spined process (V.Pr.) nearer centre ventrally, and with another flattened spine on sides of apical lobes; ramus (R.) on each side ending apically in a long process; central guide (C.G.) produced on each side into a basal process and an apically directed blade or prong (Pr.) above the aedeagus (Ae.).

Types in the British Museum, paratypes in the Transvaal and South African Museums.

Length of body: about 3–6 mm. (♂♂ the larger).

Length of wing: about 3–6½ mm.

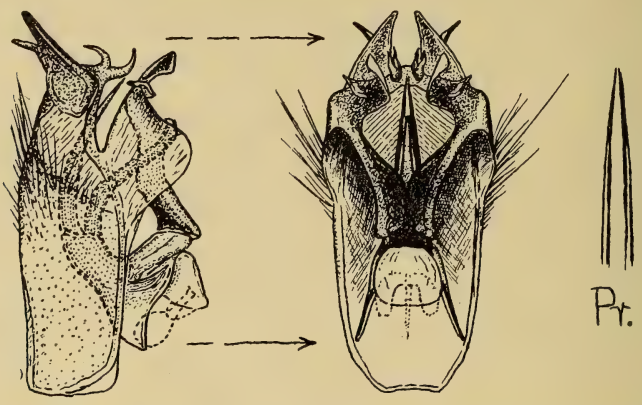
Locality.—East Cape Province: Mossel Bay (Turner, Aug. 1932) (Types); Somerset East (Turner, Nov. 1932); Katberg (Turner, Dec. 1932). S.W. Western Karoo: Michell's Pass (Mus. Exp., Oct. 1934). E. Transvaal: Barberton (Munro, 27/5/14). N.E. Transvaal: Mariep's Mt. (van Son, Apr. 1932); Louis Trichardt (Lawrence, Jan.–Feb. 1928).

Easily recognised by the darkly infuscated wings. The species is slightly variable in size and coloration. The specimens from the N.E. Transvaal appear to be distinctly darker and with darker femora. The ♂-paratype from Barberton probably represents a variety or form in which the femora and tibiae are pale yellowish, the wings slightly less dark and the hair on thorax in front, on the propleurae, and on metapleural part more brownish golden in certain lights.

1 ♂ 2 ♀♀ *A. marshalli* n. sp.

Body black; ♀♀ with the humeral angles, propleural part, an indefinite spot on mesopleuron, a longitudinal band above coxae on each side, the metapleural regions, greater part of venter, the lobes of segment 8 and apex of abdomen, the sides broadly of the scutellum and the coxae pale reddish or yellowish brown: the pleural parts, especially metapleurae, in ♂ darker and dull dark brownish; face in ♀♀ yellowish; legs with the femora and tibiae in ♀♀ yellowish brown, the apical parts of the femora above, apical parts of tibiae and the hind tibiae more extensively dark above, with the tarsi more blackish, with the coxae in ♂ very dark blackish brown (the rest of legs in ♂-specimen unfortunately missing); pubescence comparatively dense, longer and denser than in *phaeopteris*, that on head, thorax and scutellum above and on coxae in ♂ black, with some intermixed brownish or golden brownish hairs on antero-lateral parts of thorax, the hair on pleurae in ♂ predominantly yellowish brown to brownish golden, that on abdomen in ♂ sericeous yellowish to pale yellowish or brownish golden when viewed from behind, with the hairs on antennal joint 1 and on genae in ♂ long and dense, much longer than in *phaeopteris* and also very much longer than in ♀♀, with the pubescence on body below, the genae, head below and on coxae in ♀♀ much sparser and shorter than in ♂ and silvery whitish, that on antennal joint 1, especially below, on ocellar tubercle, the shorter and sparser hairs on thorax above and on scutellum and those towards apex of abdomen in ♀♀ black, with some hairs on antennae above, those on frons, occiput, intermixed ones on thorax in front and on scutellum and the sparse ones on abdomen above in ♀♀ yellowish, becoming more sericeous on abdomen, deeper yellowish on head, with the fine scaling on body denser in ♀♀, golden yellowish on thorax, more brassy yellowish on abdomen in ♀♀, more sericeous yellowish on that of ♂ and silvery whitish on venter in both sexes; wings tinged smoky brownish, darker and more brownish towards costal part, slightly darker and more brownish in ♂, but in both sexes slightly less darkly tinged than in *phaeopteris*, with the veins very dark blackish brown, with the discal cross vein at about the middle of discoidal cell, the apical cross vein of this latter cell markedly S-curved, with the alula narrow and the squamae subopaquely yellowish brown and margined with sericeous yellowish hairs, slightly paler in ♀♀; halteres with the knobs blackish brown above in both sexes. *Head* with the eyes in ♂ in actual contact above for a distance slightly more than 4 times as long as ocellar tubercle, the line

of contact very deep, with the interocular space on vertex in ♀♀ scarcely 2 times as broad as tubercle; antennae with joint 1 distinctly much longer than in *phaeopteris*, at least 7 times as long as 2, also distinctly more thickened at base, even slightly so in ♀♀; proboscis about 4 mm. long; palps slightly longer and more conspicuous than in *phaeopteris*. *Hypopygium* of ♂ (text-fig. 290) resembles that of *phaeopteris*, but differs in having no flattened, lateral, ventral spine at bases of apical lappet-like lobes in addition to the central spined process; ramus on



Text-fig. 290.—Side and ventral (dorsal) views of hypopygium and view of apically directed prongs in ♂ *Amictogeron marshalli* n. sp.

each side also entirely different (cf. text-figs. 290 and 289); apically directed dorsal prong (Pr.) on each side of aedeagus above as in *phaeopteris*.

Types in the Imperial Institute.

Length of body: about 6–7 mm.

Length of wing: about 6–7 mm.

Locality.—S. Rhodesia: Umtali; Vumbu (Ogilvie, 5/1932) (Holotype); (Mackie, 5/1932) (Allotype).

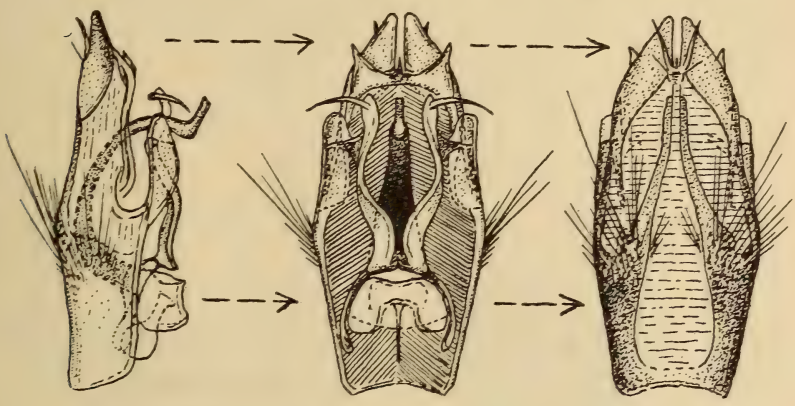
I have great pleasure in naming this species after Sir Guy A. K. Marshall, C.M.G., who collected so many interesting insects in Rhodesia and who so kindly placed all the unnamed South African Bombyliidae in the Imperial Institute at my disposal.

3 ♂♂ 4 ♀♀ *A. lasiocornis* n. sp.

This is another species with dusky or infuscated wings and also superficially resembling *phaeopteris* and *marshalli*. It is, however,

specifically distinct in important respects. Compared with *phaeopteris* it differs in the following characters:—

Wings, though distinctly infuscated, are distinctly less dark, more cinereous or paler smoky brownish, without a deep brownish or bronzy tinge, the second submarginal cell less elongate, its upper and lower veins less subparallel and the upper one bending less rapidly to third longitudinal vein at its base; pubescence in ♂♂ at least distinctly longer and denser, the hairs on antennal joint 1 in ♂♂ longer, denser



Text-fig. 291.—Side, ventral (dorsal) and dorsal (ventral) views of hypopygium of ♂ *Amictogeron lasiocornis* n. sp.

and more conspicuously bushy and more like those of *marshalli*, those on genae and head below also longer, those on abdomen in ♂♂ not yellowish or subgolden but greyish white or dull whitish, only those towards apex black, with the hairs on antennal joint 1 in ♀♀, even though much shorter than in ♂♂, distinctly longer than in ♀-*phaeopteris*, the beard and hairs on pleurae, coxae and venter in ♀♀ also whitish; pleurae in ♀♀ with only the metapleural part and anterior spiracular part above front coxae obscurely yellowish, the humeral part and mesopleural part dull or blackish, there being no distinct indication of a yellowish longitudinal band as in *phaeopteris* and *marshalli*; legs with all the coxae darker and the middle and hind femora and tibiae in ♀♀ on the whole paler yellowish, the femora not distinctly blackened above and apically, with the femora and tibiae in the ♂♂ also brownish to dark blackish brown, the tibiae more yellowish. *Head* with the eyes in ♂♂ in actual contact above for a distance at least 4 times as long as ocellar tubercle, with antennal joint 1 distinctly more conspicuously dilated or thickened and knob-

like at base in ♂♂ than in *phaeopteris*, less so in ♀♀, also much longer than in *phaeopteris*, at least 6 times as long as 2 in both sexes, with the proboscis about 2 mm. long. From *marshalli* it differs in having slightly less infuscated wings, shorter first antennal joints, with less extensive yellowish on body below in ♀♀, shorter proboscis, more greyish pubescence on abdomen in ♂♂, etc. *Hypopygium* of ♂ (text-fig. 291) differs from that of *phaeopteris* and *marshalli* in having no prong or blade-like apical extensions on each side dorsal to aedeagus, in having a characteristic and differently shaped aedeagus, an outwardly directed spine to apically produced part of rami on each side, etc.

Holotype in the British Museum and allotype in the Imperial Institute.

Length of body: about 4–5½ mm.

Length of wing: about 4½–6 mm.

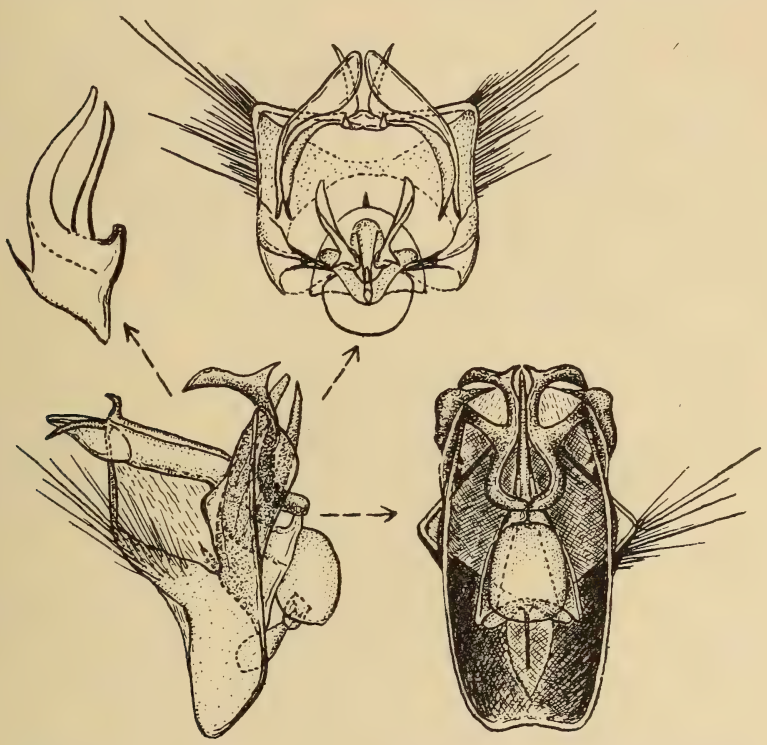
Locality. — Natal: Weenen (Thomasset, 5/1924) (Holotype); (Thomasset, 3/4/25); (Thomasset, 2840 ft. alt., 6/8/1923) (Allotype).

The ♀-allotype is labelled as being near *barbatus* (Bezz.). This species, however, differs entirely from specimens labelled as *barbatus* in the South African Museum and also from Bezzi's description.

1 ♂ *A. dasycerus* n. sp.

Body, including pleurae and abdomen, entirely black; legs with the coxae and more than basal halves of the femora black, the apical parts of femora and tibiae yellowish brown, the apices of hind tibiae at least darkened, the tarsi dark or blackish but the bases more or less also yellowish brown; pubescence fairly dense, longish and shaggy, that on antennae, genae, head below, occiput, thorax in front, on front coxae and on abdomen long and conspicuous, predominantly black on head, pleurae, coxae, venter and on femora, that on thorax above with much intermixed yellowish or pale yellowish brown hair, that on abdomen composed of yellowish brown hairs intermixed with blackish hairs, the yellowish ones more obvious in certain lights, with the fine scaling (where present) comparatively sparse and gleaming golden above, paler on venter; wings vitreous hyaline, appearing greyish hyaline in certain lights, the costal cell and extreme base feebly yellowish, with the veins very dark blackish brown, with the discal cross vein a little beyond middle of discoidal cell and apical cross vein of discoidal cell distinctly S-curved, with the alula narrow and not lobate,

with the squamae subopaquely pellucid whitish, dark-bordered and fringed with blackish hairs; halteres yellowish, with the knobs dark brownish above and yellowish below. *Head* with the eyes in contact for a distance quite 3 times as long as ocellar tubercle; frons depressed, triangular but rather large in a ♂ for this genus; genae with dense,



Text-fig. 292.—Side, apical and ventral (dorsal) views of hypopygium, and side view of aedeagus and process in ♂ *Amictogeron dasycerus* n. sp.

conspicuous, forwardly projecting, bristly hairs; antennae with joint 1 elongate, distinctly thickened knob-like at base, with very dense, long hairs as in *phaeopteris* and *lasiocornis*, the joint itself about 6 times as long as 2, with joint 3 slender; proboscis about $2\frac{1}{2}$ mm. long. *Legs* with longish sparse hairs on femora as in *phaeopteris*-series. *Hypopygium* (text-fig. 292) with the apical lappet-like processes directed outwards or dorsalwards, with a hook-like spine on each side medially at base of lappet-like processes; ramus on each side from basal part joined on to middle part of ramus which abuts on to middle aedegal part, the medial part of ramus produced apically on each side into a

process (shown from side view, ventral view and in top figure from behind or an apical view), with the aedeagus and processes dorsal to it shown on left top figure and with the bristly hairs on each side dorsally on basal part long and conspicuous.

Type in the South African Museum.

Length of body: about 5 mm.

Length of wing: about 7 mm.

Locality.—Nieuwveld Karoo: Beaufort West Distr.; Leeukloof (Mus. Staff, Oct. 1935).

This species obviously belongs to the *phaeopteris*-series but may at once be distinguished from *phaeopteris*, *lasiocornis* and *marshalli* by its clear wings, basally distinctly more thickened first antennal joints and femora, which are blackened in basal parts, different type of hypopygium, etc.

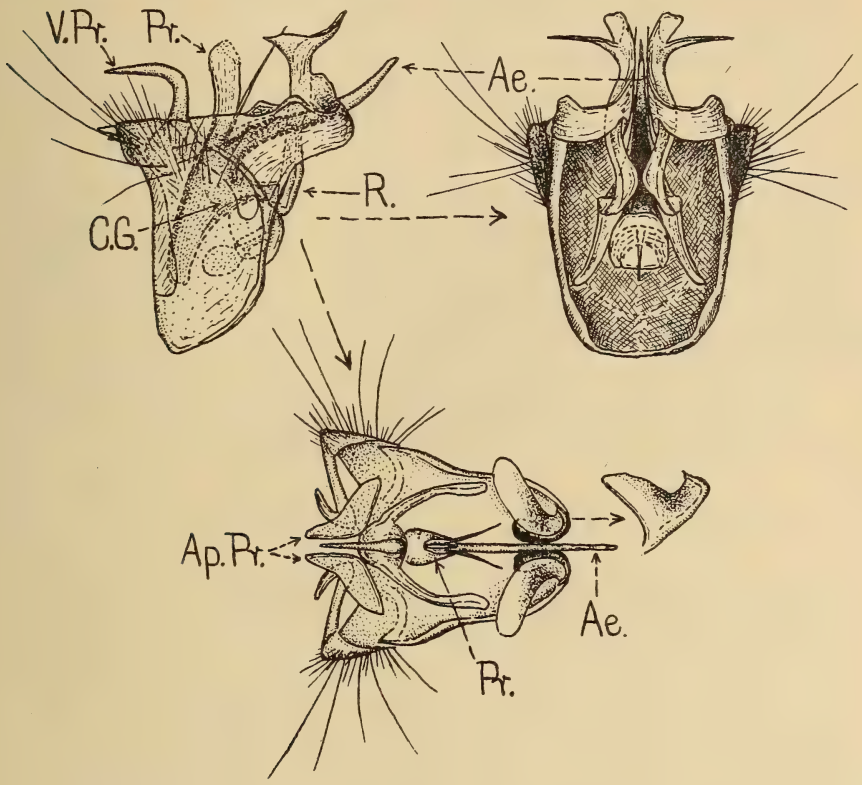
2 ♂♂ *A. peringueyi* n. sp.

(Syn. = *barbatus* (Bezz.) in part, p. 99, Ann. S. Afr. Mus., vol. xviii, 1921.)

These two ♂♂ were referred to *barbatus* (Bezz.) by Bezzi. As they do not entirely agree with Bezzi's description of the true *barbatus* (p. 115, The Bombyliidae of the Ethiopian Region, 1924), they are here described as an entirely separate species.

Body black; legs with the coxae, trochanters and femora also black, the tibiae pale yellowish brown, the greater part of the tarsi blackish brown to black; pubescence dense and long on upper part of occiput and on head below, very long and dense, bushy on first antennal joints and on genae, slightly shorter, but also dense on thorax, pleurae, scutellum and coxae, sparser on abdomen, that on occiput, antennal joint 1, thorax and scutellum above very dark blackish brown to blackish, that on genae also predominantly black, but sometimes with some admixed whitish hairs, that on head below more whitish, but also with intermixed dark ones, that on pleurae predominantly dark, appearing very dark dull brownish in certain lights, due to dark and yellowish intermixed hairs, that towards pectus with an admixture of whitish ones, that on coxae, front ones especially, sometimes with more numerous whitish hairs, with the hairs on femora predominantly dull brownish, those on abdomen discally showing straw-coloured yellowish gleams, but darkish in certain lights, those towards apex distinctly black and those towards and on venter distinctly whitish, those on sides of segment 1 more

sericeous yellowish, with the fine scaling above very sparse and only indicated on abdomen and with pale brassy gleams, that on venter denser and more silvery, that on femora dull whitish, becoming more yellowish above; wings vitreous hyaline, iridescent and without a



Text-fig. 293.—Side and ventral (dorsal) and, below, apical views of hypopygium of ♂ *Amictogeron peringueyi* n. sp.

very distinct milky whitish tint, with the veins dark brownish to brown, with the discal cross vein a little beyond middle of discoidal cell and with the upper apical part of discoidal cell moderately long, the apical cross vein thus more symmetrically S-curved, with the second submarginal cell almost parallel-sided, the upper vein fairly rapidly bent towards third longitudinal vein, the alula very slightly more lobate than in other species, with the squamae subopaquely greyish, the fringe gleaming yellowish brown in certain lights; halteres pale brownish, with the knobs almost entirely brown to

dark brownish. *Head* with the eyes in contact above for a distance quite 5 times as long as ocellar tubercle; antennae with joint 1 stout, gradually thickened basally, the base distinctly very broadly club-like, the joint about 5–6 times as long as 2; proboscis about 2½–3 mm. long. *Hypopygium* (text-fig. 293, lateral, ventral and apical views) compact and broad, the hairs on basal part long and conspicuous; apical lappet-like lobes (Ap.Pr.) directed outwards and with a single recurved, powerful spine (V.Pr.) ventrally at their bases; ramus (R.), on each side and joining aedeagal complex to sides of basal part, produced apically into a peculiarly shaped process (shown in figures); central guide (C.G.), to which ramus is joined, produced into a single process (Pr.) above aedeagus (Ae.) from which there projects a slender spine on each side.

Type in the South African Museum.

Length of body: about 5–5½ mm.

Length of wing: about 5–6 mm.

Locality.—E. Cape Province: Knysna (Peringuey, Oct. 1916).

This species differs from the description of *barbatus* (Bezz.) in not having entirely white hair on head below and body below.

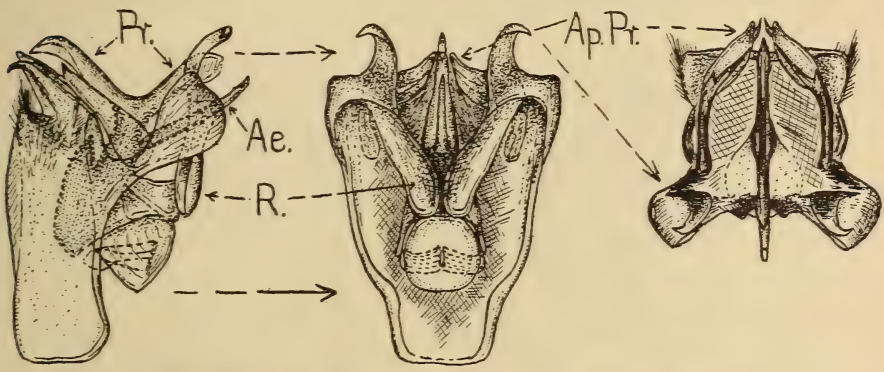
1 ♂ *A. barbatus* (Bezz.).

(P. 115, The Bombyliidae of the Ethiopian Region, 1924; Bezzi, p. 78, Broteria (Ser. Zool.), vol. xx, Fasc. II, 1922; p. 99, Ann. S. Afr. Mus., vol. xviii, 1921.)

This solitary ♂-specimen, from O'okiep in Namaqualand, was referred to and labelled as *barbatus* by Bezzi himself. It more or less agrees with Bezzi's description, but there is nevertheless much doubt as to its specific identity and more so in view of the fact that the two ♂♂ described above as *peringueyi* were also referred to this species by Bezzi. Moreover, it is impossible to state whether this specimen actually does belong to the same species as the ♂-type from Simonstown in the British Museum. The ♀, from Willowmore, may also prove to be an entirely different species. The characters of this ♂-specimen, which is provisionally referred to *barbatus*, are:—

Body black; venter with narrow pallid hind margins; legs with the coxae and femora black, the tibiae pale yellowish, even the front ones yellowish, the tarsi dark in apical parts; pubescence on head below, on genae, head behind eyes, sides of thorax in front, the pleurae and on coxae predominantly whitish and dense, only a very few in-

conspicuous dark intermixed ones on head below and on pleurae, the erect hairs on thorax and scutellum above, those on occiput and very densely on antennal joint 1 dark blackish brown, with, however, some whitish intermixed ones on thorax in front and sides, the pubescence on abdomen entirely white, without any distinct dark or blackish ones even apically, with the fine, hair-like scaling on abdomen sparse above, sericeous yellowish to brassy, dense on venter and silvery whitish, with the scaling on femora silvery whitish;



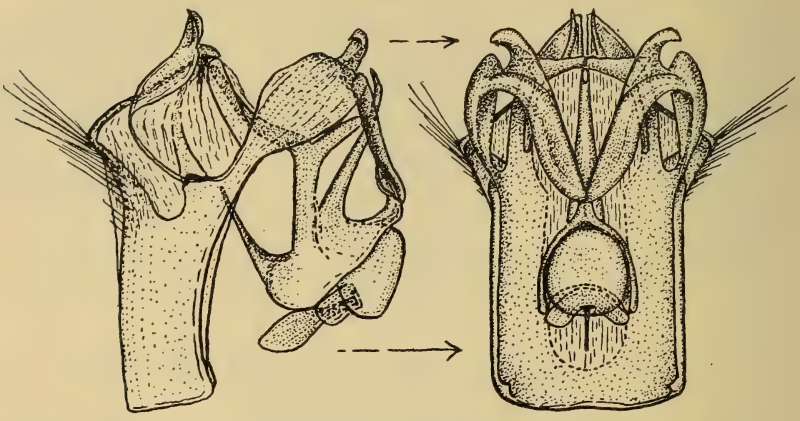
Text-fig. 294.—Side, ventral (dorsal) and apical views of hypopygium of ♂ *Amictogeron barbatus* (Bezz.).

wings hyaline, but with a distinct subopaquely milky whitish tint, the veins very dark blackish brown, the discal cross vein beyond middle of discoidal cell and the apical cross vein of this cell only slightly S-curved, with the alula broader and more lobate than in any other species except *peringueyi*, with the squamae subopaquely whitish and with whitish fringes; halteres with the knobs pale yellowish below and almost black above. *Head* with the eyes in contact for a long distance, as in *peringueyi*; antennae with joint 1 stout as in the latter species, markedly thickened at base, at least 5 times as long as 2, with 3 rapidly narrowed to a point in apical part, otherwise rod-like; proboscis about 2½ mm. long. *Hypopygium* (text-fig. 294) nearest to that of *peringueyi*, yet entirely different, with only short hairs on basal part, without a long recurved spine at base of apical lappet-like lobes (Ap.Pr.); apically produced part of ramus (R.) on each side differently shaped, and with a single apically produced process dorsal to aedeagus (Ae.), which process branches into a dorsally directed and ventrally directed process respectively (*see* Pr. in figures).

Length of body: about 5½ mm.
Length of wing: about 6 mm.
Locality.—Namaqualand.
This species is separated from *peringueyi* by the characters given in the key.

1 ♂ *A. consors* n. sp.

Body black and abdomen also entirely black; legs with the coxae and femora entirely black, the front tibiae very dark blackish brown



TEXT-FIG. 295.—Side and ventral (dorsal) views of hypopygium of ♂ *Amictogeron consors* n. sp.

or almost black, the middle and hind tibiae yellowish, becoming darker apically, the tarsi almost entirely dark or blackish, only the bases of middle and hind ones obscurely reddish brown or brownish; pubescence somewhat shaggy, but not very dense, that on first antennal joints, on genae, head below, occiput, abdomen and coxae longish, predominantly whitish, that on genae conspicuous, the long hairs on first antennal joints, those on ocellar tubercle and along hind margin of eyes on occiput down to head below black, without any distinct visible black intermixed hairs on thorax above, pubescence on entire abdomen and body below whitish, with the fine scaling (where not denuded) gleaming whitish, with very feeble brassy reflections on abdomen above, more whitish and slightly denser on venter, the scaling on legs silvery whitish; wings glassy hyaline, iridescent, with the costal cell and extreme base subopaquely milky whitish, the apical part of costal cell yellowish, with the veins very dark blackish brown, tending to be more brownish at base, with the

discal cross vein at about middle of discoidal cell, with the second submarginal cell narrowed basally, its upper vein not very rapidly bent down to third longitudinal vein, with the squamae subpellucid; halteres yellowish, the knobs yellowish below but extensively very dark blackish brown above and around sides. *Head* with the eyes in actual contact for a distance a little more than 4 times as long as ocellar tubercle, the line of contact impressed; frons depressed, small; face broadish, not prominent; antennae with joint 1 stoutish, distinctly thickened towards base, with longish hairs above and below, quite 4 times as long as 2, with 3 rod-like, only gradually tapering to a point in apical part; proboscis about 2 mm. long. *Hypopygium* (text-fig. 295) with the lateral ramus on each side from basal part broadened apically (as seen in left-hand figure), its middle part on each side abutting on middle part of aedeagus, produced apically into an outwardly directed hook; process dorsal to aedeagus ending apically in a longer and shorter process; middle aedeagal part also produced dorsally into an apically directed short process (*see* figure on left).

Type in the South African Museum.

Length of body: about 4 mm.

Length of wing: about 5 mm.

Locality.—Karoo: Prince Albert Distr.; Spitzkop (near Meiring's Poort in the Swartbergen) (Mus. Staff, Nov. 1935).

This species belongs to the *peringueyi* and *barbatus*-series, but is intermediate between them and the other species with thickened first antennal joints. From the specimen from O'okiep (labelled as *barbatus*) it differs in having less thickened first antennal joints, less dense pubescence, much darker femora and anterior tibiae and almost black veins in the wings. From *peringueyi* n. sp. it differs in the less thickened first antennal joints, predominantly whitish pubescence and also by the almost black wing-venation. The hypopygium more closely resembles that of *barbatus* (cf. text-fig. 294), but differs in essential details when these figures are compared.

1 ♀ *A. capicolus* n. sp.

Body black; humeral angle, sclerite on each side above front coxa, posterior part of metapleural area, ventral lobes of segment 8 and last tergite yellowish; legs with only the front coxae predominantly yellowish, the middle and hind femora, all the tibiae and basal parts of tarsi yellowish, only the apical parts of femora above and extreme

apices of tibiae tending to be brownish; pubescence with the long hairs on genae, head below and the hair on pleurae, coxae, femora and abdomen silvery whitish, the hair on antennal joint 1 dense and black, that on frons and tubercle also black, that on occiput sericeous yellowish, the sparse hairs on thorax above blackish, but intermixed anterolaterally with sericeous yellowish to whitish ones, with the longer hairs at apex of abdomen black, with the fine scaling on body above denser on abdomen, sericeous yellowish, especially on abdomen, silvery whitish on venter and femora; wings hyaline, iridescent, becoming very faintly whitish towards base, the veins very dark brownish, the discal cross vein at about middle of discoidal cell, with the apical cross vein of this latter cell more or less symmetrically S-curved; halteres with the knobs blackish brown above. *Head* with the interocular space slightly less than 2 times as broad as tubercle; antennae with joint 1 comparatively short and stout, distinctly slightly thickened at base, quite 4 times as long as 2; proboscis about 2 mm. long.

Type in the Transvaal Museum.

Length of body: about 4½ mm.

Length of wing: about 4½ mm.

Locality.—S.W. Cape Province: Cape Peninsula; Fish Hoek (Munro, Oct. 1931).

1 ♀ *A. montanus* n. sp.

Very near *capicolus*, differing only in having the sides of abdominal segments 1 and 2 broadly reddish yellow, entire ventral segment 1, the hind margins of the other ventral segments broadly and even sides of hind margins of tergites 5–7, in addition to 8 and the terminal segments, pale reddish or yellowish brown, all the coxae yellowish, in having even darker veins in wings, a distinctly more obliquely S-curved apical cross vein to discoidal cell, the upper limb of which is distinctly more curved than lower one, in having slightly shorter black hairs on first antennal joints, distinctly more yellowish or sericeous yellowish hairs at base of abdomen above, deeper golden scaling on abdomen above and on thorax and also in having more slender first antennal joints, which are scarcely visibly thickened at their bases.

Type in the British Museum.

Length of body: about 5 mm.

Length of wing: about 4½ mm.

Locality.—S.W. Cape Province: Fransch Hoek (Simmonds, Nov.–Dec. 1930).

When the ♂♂ of both this and the above species are known this ♀ may prove to be only a form of the preceding species.

1 ♀ *A. waltoni* n. sp.

Body black; humeral part, sclerite above each front coxa, greater part of metapleurae, sides of first abdominal segment, hind margins of ventral segments, the apical part of abdomen, the femora, tibiae and basal parts of tarsi yellowish; coxae tending to be infused with brownish and front femora slightly more brownish; pubescence with the erect bristly hairs dark blackish brown on first antennal joints, frons, upper part of occiput, thorax and scutellum above, those on genae, head below and entire body below whitish, those on abdomen also whitish, but those on hind margins of tergites 6–9 and even on the ventral segment before the ventral lobes black, with the fine depressed scaling comparatively dense and conspicuous on body, especially on abdomen, pale brassy yellowish, becoming whiter on sides of abdomen and silvery whitish on venter and on femora; wings hyaline, iridescent, with the veins brownish, the discal cross vein at about the middle of discoidal cell, the apical cross vein of this cell unsymmetrically S-curved, with the second submarginal cell almost parallel-sided, the upper vein rapidly bent down, almost at right angles, to third longitudinal vein; halteres with the knobs yellowish below and brownish above. *Head* with the interocular space on vertex a little broader than tubercle; antennae with joint 1 rod-like, not thickened at base, a little more than 4 times as long as 2, with 3 very slender, scarcely broader at base than towards apex; proboscis about 3½ mm. long; palps brownish and comparatively long.

Type in the Transvaal Museum.

Length of body: about 5 mm.

Length of wing: about 6 mm.

Locality.—E. Cape Province: Albany Distr.; Resolution (Walton, 28/9/27).

From *cheilicterus* this species differs in having more hyaline wings, paler venation, shorter first antennal joints, more uniformly yellowish femora and no yellowish spot on face.

Gen. *Pseudoamictus* Big.

(P. 342, Ann. Soc. Ent. Fr., vol. lxi, 1892; Paramonow, p. 477, Trav. Mus. Zool. Kiev, tom. xv, No. 9, 1930; syn. = *Pseudempis* Bezz. (p. 94, Ann. S. Afr. Mus., vol. xviii, 1921), by Bezzi himself on p. 473, loc. cit., under *Gonarthrus chioneus* and again by Paramonow on pp. 479 and 480, loc. cit.).

The identity of this genus has up to now been wrapped in confusion. In 1828 Wiedemann (p. 353, Aussereurop. Zweifl. Ins. i) described an insect from the Cape as *Amictus heteropterus*, the wing-venation of which, according to Wiedemann himself, deviated from that of *Amictus* Wied. s. str. (p. 352 and 353, loc. cit.). Macquart (p. 113, Dipt. Exot. ii) in 1840 again referred briefly to the genus *Amictus* and gave a figure of the wing of *A. heteropterus* on Pl. 11, fig. 5, loc. cit. In 1892 Bigot drew up a key to separate the genera of *Bombyliidae* (pp. 327–342, Ann. Soc. Ent. Fr., vol. lxi) in which he referred *Amictus heteropterus* Wied. to a new genus *Pseudoamictus* (p. 342, loc. cit.), a generic name which was ignored by Becker in his more comprehensive key to the subfamilies and genera of *Bombyliidae* (pp. 432–442, Ann. Mus. Zool. Acad. Imp. St. Petersb., vol. xvii, 1912). In 1921 Bezzi again ignored Bigot's generic name and redescribed *Amictus heteropterus* as *Pseudempis* (p. 94, Ann. S. Afr. Mus., vol. xviii), which genus he, however, subsequently referred to *Pseudoamictus* Big. as a synonym in an appendix to his paper (p. 473, loc. cit.). Finally in 1930 Paramonow reproduced the description of Bezzi's *Pseudempis*, comparing it with his own and Wiedemann's description of *Amictus heteropterus* and, not having seen Bezzi's synonymic note on *Pseudempis*, expressed his doubt as to the validity of *Pseudempis* as a separate genus from *Pseudoamictus* Big.

After a careful comparison of the specimens on which Bezzi based the description of *Pseudempis* with the descriptions of *Pseudoamictus* (= *Amictus*) *heteropterus* given by Wiedemann and Paramonow, no other conclusion can be arrived at but that *Pseudempis* is generically identical with *Pseudoamictus* Big. Moreover, one ♂-specimen in the South African Museum has a label "B. 170" on it, thus proving that it was one specimen of the batch of *Bombyliidae* forwarded to Bigot by Peringuey in 1892. Paramonow's doubts are to be ascribed to slight inaccuracies in Bezzi's generic description of *Pseudempis* and Bezzi's confusion of a ♂-specimen of *heteropterus* s. str. with the ♀ of another species from Namaqualand.

In addition to *heteropterus* (Wied.) and *bezzi* (Par.), the species

luctuosus, described by Bezzi under *Geron*, should also be referred to *Pseudoamictus*. As none of the authors have given a satisfactory generic description of this genus, it is necessary to redescribe it here and to compare it with *Geron* and *Amictogeron*:—

Body with the thorax only slightly convex or humped above, much less so than in the other two genera; pleural parts thus less high and compressed; head, pleurae, stripes or bands on thorax above and the venter also with much greyish or slaty grey bloom. *Head* on the whole less steep, with a tendency to be more dorso-ventrally flattened, slightly broader; face, as in *Amictogeron*, entirely bare, but more uniformly convex, not distinctly depressed on sides or medially convex; genae broad, much broader than in *Geron* or *Amictogeron*, the distance from eye to eye across buccal cavity considerably broader than across face or front part of frons, not almost subparallel as in the other two genera, with the narrow groove on each side of buccal rims, separating them from genae, also more distinct, the genae not bare in the middle as in *Geron*, but only the extreme upper parts bare as in *Amictogeron*; eyes in ♂♂ separated above, even if only very narrowly and if subcontiguous then only so for a very short distance, never in actual contact for a long distance; interocular space on vertex in ♀♀ not broader than about 2 times as broad as ocellar tubercle; frons in ♂♂ larger, broader and longer than in either *Geron* or *Amictogeron*; antennae with the first joints separated or slightly separated at their bases, elongate, stout or incrassate, slightly thicker basally, at least 6 times as long as second joints, with dense and long, dark or blackish hairs, especially in ♂♂, with the second joints globular, with the third joints about equal, or subequal, in length to the first, straight, thicker at their bases and gradually tapering apically, the apical part, however, more marked off and slender, passing into an indistinctly marked off terminal joint, which ends in a minute style; palps very slender, but slightly longer than in *Geron* or *Amictogeron*, no separate apical joint being distinctly visible. *Wings* elongate, usually darkly infuscated, with a tendency for base of second submarginal cell to be opposite or nearly opposite apex of discoidal cell, the discal cross vein, unlike that of *Geron* and *Amictogeron*, thus tending to be distinctly farther removed from basal fork of second and third longitudinal veins than from base of second submarginal cell; discal cross vein at about, or beyond, middle of discoidal cell; apical cross vein of discoidal cell markedly S-curved; anal cell acute apically, sessile on hind border or only very shortly stalked; axillary lobe slightly less lobate and more like that of *Amictogeron*; alula narrow like that of *Amictogeron* and

not so distinctly lobate as in *Geron*. *Legs* without any spines on femora below, only fine hairs; tibiae with the spicules on the whole less developed than in *Geron* and *Amictogeron*, being practically confined to apical parts or lower apical parts of the tibiae, with at least one apical spur on middle tibiae below slightly longer and stouter than the others as in the other two genera; tarsi also with more numerous and slightly longer spicules in a clump or patch at bases of first joints below. *Abdomen* in ♀♀ also with segment 8 produced below into a lobe on each side. *Pubescence* less dense and also shorter than in *Geron*, without any flattened, silvery white scaling on head or sides of head, composed of erect hairs, shorter in ♀♀ and subdepressed or depressed, much denser and finer hairs or hair-like scaling, with the erect hairs denser on occiput and thorax, dense and long on genae and head below, dense on coxae, sparse on pleurae, the metapleural part almost bare, denser again on abdomen, where the hairs are slightly longer across hind margins of segments (no distinct bristles being present), with the finer depressed pubescence and scaling very dense on abdomen. *Hypopygium* of ♂♂ (text-figs. 296–298) very much like that of *Amictogeron*, also with a single, undivided basal part, ending apically on each side in an apical lappet-like lobe, which is provided dorsally with a spine as in *Amictogeron*, with the strongly chitinised strand on each side from base of each apical lappet-like process obliquely to side sometimes provided with a strong apically directed spine; ramus on each side produced apically into a strap-like process or a bifid process; central guide-like part, abutting on bases of rami, with or without an apically directed prong on each side and dorsal to aedeagus. The general structure of the hypopygium can be better made out from the figures. Contrary to Paramonow's statement, this genus is not nearest to *Phthiria* Meig., a genus which is entirely different in very important respects, but to *Amictogeron* and *Geron* together with which it is to be referred to an entirely separate subfamily, the *Geroninae*, defined above.

Key to the known species.

1. (4) Large species, about 9–10½ mm. long, with more elongate wings, about 10–12 mm. long; head more subglobular, with the eyes in ♂♂ more broadly separated above, only a little narrower than ocellar tubercle at narrowest part, with the frons in ♀♀ almost bare, only a few darkish hairs in front of tubercle, more distinctly transversely depressed towards anterior part, with antennal joint 1 slightly less separated from its partner at base, the face above buccal cavity not conspicuously yellowish; wings paler, more yellowish brown, the veins brownish to dark brownish,

with the discal cross vein more distinctly beyond middle of discoidal cell; humeral angle, anterior spiracular part, posterior calli, hind margins of venter and apex of venter, as well as hind margins of some tergites in some specimens, yellowish or yellowish red; femora in both sexes predominantly or entirely yellowish like the tibiae and greater part of tarsi; pubescence with the dark hairs on body above and on antennae more dark brownish to blackish or mauvish brown, and with the scaling on abdomen above deeper yellowish or deep golden; hypopygium of ♂♂ (text-figs. 296 and 297) with a strong apically directed spine on each side ventrally on chitinised strand extending obliquely from base of apical lappets to side, the central guide produced apically on each side above aedeagus into a blade-like prong, and the apical part of ramus not ending in two spines . . . . . 2.

2. (3) Hair on genae, head below, sides of head, pleurae, coxae, venter and the depressed scaling or intermixed hairs on thorax above and on scutellum entirely or predominantly yellowish or golden, with the hairs on antennal joint 1, on ocellar tubercle, thorax above and scutellum usually more yellowish brown or dark brownish to purplish, those on abdomen predominantly yellowish, those on antennae also distinctly longer and with a more rufous brown tint towards apex; antennal joint 1 with a distinct reddish or brownish tint and often more or less reddish towards apices; interocular space on vertex in ♀♀ a little narrower or scarcely 2 times as broad as tubercle; legs with all the femora entirely yellowish and with more dull yellowish scaling on them; hypopygium of ♂ (text-fig. 296) . . . ♂ ♀ *heteropterus* (Wied.) (and varieties) (p. 962).

3. (2) Hair on genae, head below, sides of head, the pleurae, venter and coxae and the scaling on thorax and scutellum entirely silvery whitish, even the hair towards base of abdomen whitish, the hairs on antennae, ocellar tubercle, thorax and scutellum and also towards apex of abdomen usually darker and more mauvish or purplish black, those on rest of abdomen yellowish, those on antennae distinctly shorter and less bushy, especially in ♂, and dark purplish brown; antennal joint 1 entirely very dark or black; interocular space in ♀ about 2 times as broad as tubercle; legs with the front femora predominantly castaneous brown, even the others below towards their bases sometimes more castaneous brown to dark brownish; hypopygium of ♂ (text-fig. 297)

♂ ♀ *bezzii* (Par.) (p. 964).
(n.n. *heteropterus* (Bezz.) nec Wied.)

4. (1) Much smaller species, only about 5–5½ mm. long, with less elongate wings, only about 5–6 mm. long; head distinctly more dorso-ventrally depressed, with the eyes in ♂♂ more narrowly, or scarcely, separated at narrowest part where they are subcontiguous and only about as broad as front ocellus, with the frons in ♀♀ distinctly more convex, only depressed medially anteriorly and with more numerous short bristly hairs, with the first antennal joints more separated basally, with the face above and buccal cavity pale ivory yellowish; wings darker, more blackish brown, the veins also darker and very dark blackish brown to black, with the discal cross vein nearer middle, or at about middle, of discoidal cell; all these sites entirely dark or black in both sexes, only segment 8

below and its lobes in ♀♀ yellowish; femora in both sexes black, the tibiae yellowish red to reddish and the greater part of tarsi dark; pubescence with the dark erect hairs on antennae above and body above black and slightly longer relative to body, with the scaling on abdomen above paler, more sericeous yellowish; hypopygium of ♂ (text-fig. 298) with only a slender spine on each side nearer sides of apical lappet-like lobes, without an apically directed process on each side and above aedeagus, and with the apical part of ramus ending in 2 characteristic spines

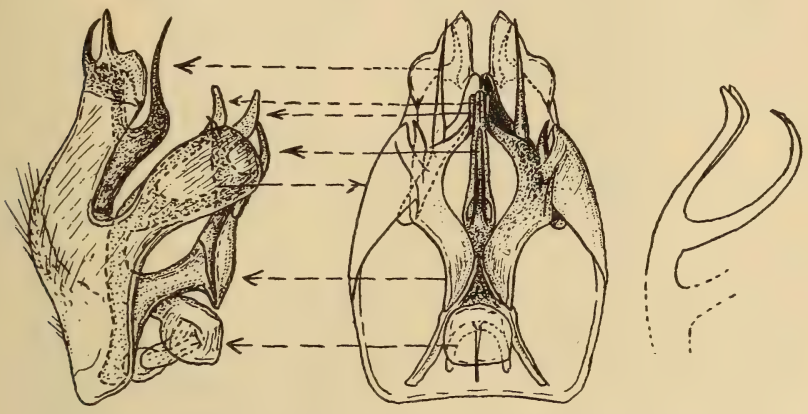
♂ ♀ *luctuosus* (Bezz.) (p. 965).

P. heteropterus (Wied.).

(P. 353, Aussereurop. Zweifl. Ins., i, Tab. IV, fig. 7, 1828; Bezzi, p. 94, Ann. S. Afr. Mus., vol. xviii, 1921, as *Pseudempis*; Paramonow, p. 477, Trav. Mus. Zool. Kiev, tom. xv, No. 9, 1930.)

After a careful comparison of the specimens in the South African Museum with the descriptions of Wiedemann and Paramonow, there is no doubt that the ♂-specimen of *Pseudempis heteropterus*, referred to by Bezzi, as well as some other ♂♂ and a ♀ from Cape Town are in fact *Pseudoamictus heteropterus*. Paramonow's doubts about the conspecificity of Bezzi's species and this species are in part correct, for the ♀ from Namaqualand is a slightly different species. As Bezzi based the generic description of *Pseudempis* on a ♂ and a ♀ belonging to different forms, he not only confused slight specific differences but also sexual differences. The species is very easily recognised by its resemblance to an Empid or a *Scatophaga* as stated by Paramonow, by its rather elongated yellowish brown wings, the middle parts of the cells of which are sometimes slightly clearer or more translucent, by its long and thickened first antennal joints, its yellowish legs, predominantly yellowish hair on head below and body below (one ♂ has the hair below slightly more whitish), the dark brownish to purplish brown erect hairs on antennae, occiput, thorax above and apical part of abdomen and more yellowish or golden hairs on greater part of scutellum and abdomen, by the much denser, finer, depressed golden scaling above, especially on abdomen; longish lobes on segment 8 below in ♀♀ yellowish, the hind margins on abdomen yellowish to reddish yellow, narrow and sometimes not distinct above, but broad on venter. The wing-venation or wing-characters are slightly variable and not specifically reliable, the infuscation being even slightly darker in some specimens, and the supernumerary small cell at inner base of second posterior cell, mentioned by Paramonow, cannot be a specific character. That the veins are to a certain

extent unstable is proved by the fact that the S-curved apical cross vein of discoidal cell sometimes has an indication of a short stump or appendix nearer upper loop on one wing or on both wings and the anal cell is shortly stalked, sessile, or even narrowly open on hind border. The eyes in ♂♂ are separated above, at narrowest part, a little narrower than ocellar tubercle, the inner margins of eyes diverging posteriorly and anteriorly from this point, the part in front of tubercle being slightly raised and the frons itself slightly depressed,



Text-fig. 296.—Side and ventral (dorsal) views of hypopygium and side view of aedeagus and prongs in ♂ *Pseudoamictus heteropterus* (Wied.).

with a tuft of a few purplish brown hairs at base of depression on each side. The interocular space on vertex in ♀♀ is only very little less than 2 times as broad as ocellar tubercle, and the frons in ♀♀ is also slightly, but broadly, depressed anteriorly, almost entirely bare, with only a few indistinct hairs on each side a little in front of tubercle. The *hypopygium* of ♂ (text-fig. 296) with the apically directed spine from oblique chitinous strand on each side, from base of each lappet-like apical lobe, long and conspicuous (*see* lateral and ventral views in the figures); the apically produced process, on each side from each ramus, strap-like, and also with a shorter sharp process from the base of each on the outer side; aedeagus and the contiguous apically directed processes dorsal to it are shown in dotted outline in left-hand figure and separately in the right-hand figure. A ♂ and ♀ from Ceres District in the Cold Bokkeveld appear to constitute a more distinct variety. From the Cape specimens, which I take to represent the more typical form, they differ in being darker, with even darker blackish brown or very dark purplish brown hair on antennal joint 1,

ocellar tubercle and on disc of thorax, in having distinctly darker brownish wings, which appear more purplish brown and with darker veins, in having the interocular space on vertex in ♀ slightly broader and nearly 2 times as broad as tubercle, and in ♂, at narrowest part, about as broad as tubercle. In the colour of the wings they resemble the next form *bezzii* (Par.) from which they differ, however, in having golden hair on genae and thorax below, and golden scaling on thorax above.

Length of body: about 9–12 mm.

Length of wing: about 10–12 mm.

Locality.—S. Western Cape Province.

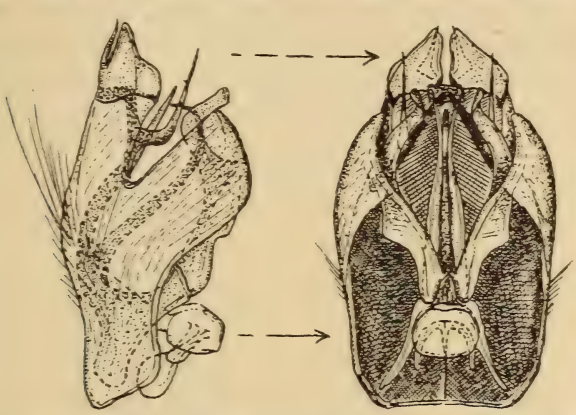
1 ♂ 2 ♀♀ *P. bezzii* (Par.).

(N.n. for *heteropterus* Bezz. nec Wied., p. 478, Trav. Mus. Zool. Kiev, tom. xv, No. 9, 1930; Bezzi, p. 95, Ann. S. Afr. Mus., vol. xviii, as *Pseudempis*.)

One ♀-specimen, referred to by Bezzi (p. 95, loc. cit.), is slightly different from *heteropterus* s. str. Together with a ♂ from the same locality and another ♀ from Namaqualand, this specimen is here referred to *bezzii*, a new name to which Paramonow referred Bezzi's specimens (in Bezzi's material actually applicable only to the ♀-specimen).

This species is scarcely distinguishable from *heteropterus*. Compared with the ♂ and ♀ of the latter it differs in having slightly darker wings and darker veins; legs with the front femora predominantly dark brownish and the undersurfaces of the others also slightly brownish towards the bases, with the tarsi in ♀♀ at least, especially front ones, very slightly more thickened, with the scaling on the femora distinctly more silvery whitish and not dull yellowish white; pubescence with the erect hairs on genae, head below, sides of head, on entire pleurae, on coxae, and on venter as well as the fine depressed scaling and intermixed depressed hairs on thorax, scutellum and base of abdomen distinctly frosty or silvery whitish and not yellowish or golden, with the hairs on first antennal joints distinctly shorter and less bushy and entirely very dark purplish brown or blackish, those on extreme upper parts of genae in ♂, those on thorax above, on part of scutellum and towards apex of abdomen also darker and more purplish black than in *heteropterus*. *Head* with antennal joint 1 entirely black, not tending to be brownish, with the interocular space in ♀♀ only slightly broader than in *heteropterus* and quite 2 times as

broad as tubercle. The *hypopygium* (text-fig. 297) very much like that of *heteropterus*, but the spine on each side near base ventrally of apical lappet-like lobes less developed, with the ramus slightly



TEXT-FIG. 297.—Side and ventral (dorsal) views of hypopygium of ♂ *Pseudoamictus bezzi* (Par.).

different (cf. text-figures), with the aedeagus much longer and the prongs dorsal to it also longer, etc.

Types in the South African Museum.

Length of body: about 10–11 mm.

Length of wing: about 11–12 mm.

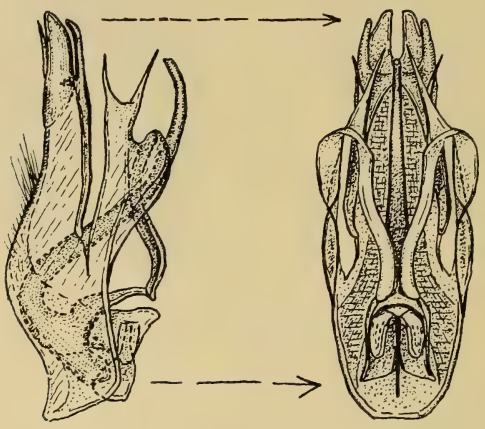
Locality.—Namaqualand: O'okiep (Lightfoot, Sept. 1890) (Types): Leliefontein (Lawrence, Sept. 1932).

P. luctuosus (Bezz.).

(P. 99, Ann. S. Afr. Mus., vol. xviii, 1921.)

This species was described by Bezzi under *Geron*, but as it is generically different from the latter and also different in many respects from *Amictogeron*, and being much closer to *heteropterus* and *bezzii*, it is transferred to *Pseudoamictus* in this paper. It apparently constitutes a bridging or transitional species between *Amictogeron* and *Pseudoamictus* with the latter of which it has, however, more in common. The species is easily recognised by the very darkly infuscated wings, which have very dark and almost black veins, the entirely black body, only segment 8 below and its lobes below in ♀♀ being yellowish, by the more or less yellowish white face and buccal cavity, the entirely black femora, reddish or reddish yellow

tibiae, and predominantly dark tarsi, the elongate and stout, somewhat widely separated and black-haired first antennal joints, the somewhat depressed head, with very narrowly separated, subcontiguous eyes above in ♂♂, the narrowest part about as broad as front ocellus, by the distinctly more convex frons in ♀♀, which has more numerous black hairs than in the other two species, by the erect black hairs on antennae, occiput, thorax above, sides of thorax,



TEXT-FIG. 298.—Side and ventral (dorsal) views of hypopygium of ♂ *Pseudoamictus luctuosus* (Bezz).

scutellum, and towards apex of abdomen, all of which are comparatively longer than in the other species, especially in ♂♂ and also by the paler, more sericeous yellowish scaling on body above. *Hypopygium* of ♂ (text-fig. 298) is also entirely different from that of *heteropterus* (cf. text-fig. 296) in having no apically directed prongs from central guide on each side above aedeagus, in having the apically produced part of ramus on each side ending in 2 spines, etc. The hypopygium has a greater resemblance to the type found in *Amictogeron*.

Types in the South African Museum.

Length of body: about 5–5½ mm.

Length of wing: about 5–6 mm.

Locality.—Basutoland: Maseru (Dieterlin).

Subfam. *Cyrtosiinae*.

This subfamily is represented in the Palaearctic region by a number of genera, chiefly characterised by a reduced wing-venation. As far

as I am aware, only two insects belonging to this subfamily have been described from Southern Africa. This omission is probably due to the fact that the Cyrtosiines are amongst the smallest of known *Bombyliidae* and thus more likely to escape the attention of collectors rather than to a natural paucity of species. Some Palaearctic forms have been collected on flowers, and there is reason to believe that the Ethiopian representatives of the same genera or indigenous genera are also anthophilous and that, when more attention is given in this direction, many more interesting forms will have to be added to our list. Basing the diagnostic characters of this subfamily on the reduced and anomalous wing-venation, as defined by Becker and others, the South African representatives of *Platypygus* Lw. and *Empidideicus* Beck. and the new genus *Onchopelma*, described in this paper, are characterised as follows:—

Body usually small, with extensive yellow markings, even in ♂♂; pubescence very poorly developed, short, sparse, and inconspicuous, the greater part of head, pleural and pectoral regions being bare and smooth, much as in members of the *Heterotropinae*. *Head* subglobular or sometimes also elongate, and with the occipital region more developed, the eyes being shifted forwards; frons sometimes equally broad in both sexes on the vertex, sometimes depressed and groove-like in both sexes, with the inner margins of eyes converging or tending to converge anteriorly; antennae in all cases distinctly quadriarticulate, a distinct and prominent fourth joint, sometimes resembling a stylar element, being conspicuous (text-figs. 299, 302 *a* and 305 *a*), with the third joints broader and longer and with all the joints usually covered with distinct, short pubescence or hairs; proboscis rarely very long, usually short and stoutish; palps, in the South African forms seen by me at least, minute, sometimes not discernible and, when visible, inconspicuously small. *Thorax* roundly convex from side, humped in appearance. *Wings* (text-figs. 300, 302 *b* and 305 *b*) in all cases without a second submarginal cell, the position of this cell being taken up by the first posterior cell, sometimes without a discoidal cell, and in some forms even without a marginal cell, usually with 4 posterior cells present, with the anal cell open or even closed apically, with the alula wanting or very vestigial, the squamae much reduced in size and without any distinct basal comb. *Legs* usually shortish, without any spines on femora below, only with fine pubescent hairs, without any distinct spicules on tibiae, their apical spurs even minute and inconspicuous; tarsi with the basal joints of hind ones in some ♂♂ produced basally into a hook-like,

curved process (text-fig. 303); claws and pulvilli, though small, well developed in all the known species. *Hypopygium* of ♂♂ (text-figs. 301 *b*, 304 *b*, 306 and 307) usually very minute, the various structures very difficult to make out even under a very high power. The basal parts are separated as in *Bombyliinae* and usually with short, bristly hairs dorsally above. True apical joints are not present, but these are represented by lobes or processes (Ap.Pr.). At the bases of these ventrally on each side there is an apically directed hook. The aedeagal complex ends apically in a distinct aedeagus (Ae.) the broadened base of which has on each side attached to it or connected with it a basally directed rod (Ro.), and sometimes even a ventrally directed rod (text-fig. 304, *b*, V.Ro.). The middle part has the usual lateral struts (L.Str.) and a basally directed basal strut (Ba.Str.). The latter is unusual in that it has a dorsal process (seen in side views) or a flattened extension (text-fig. 304, *b*), and sometimes even a flattened lateral process on each side (text-figs. 306 and 307). The last sternite in the ♂♂ usually has the upper apical angle or part on each side prolonged or produced into a distinct, spine-like process (text-figs. 301 and 304, *a*).

Of the three genera * represented in the collections, the new genus *Onchopelma* is a very peculiar genus and not represented in the Palaearctic Region. The known representative of the genus *Platypygus* Lw. is not genotypical but is represented by a form which is very near the subgenus *Cyrtisiopsis* Séguy, but having different wing-characters, is here referred to a new subgenus *Ceratolaemus*. In addition to a fairly typical representative of the genus *Empidideicus* Beck. there is also represented a species which is not genotypical in its wing-characters and which is here placed in a new subgenus *Anomaloptilus*. The two species *Empidideicus beckeri* and *Glabellula mellea*, which are unknown to me and which have been described by Bezzi from Namaqualand (*see* pp. 180–181, Denkschr. Med.-Nat. Ges. Jena, Bd. 13 (Bombyliidae, pp. 177–181), fig. 1, 1908) also appear to belong to the *Cyrtosiinae*.

Gen. *Platypygus* Lw.

(P. 127, Ent. Zeit. Stettin, v, 1844; Engel, p. 120, Die Fliegen. d. Pal. Reg. Lief. 69 (Bombyliidae), 1933.)

There is no doubt that the specimens before me belong to this genus, all the known Palaearctic species of which have been described by

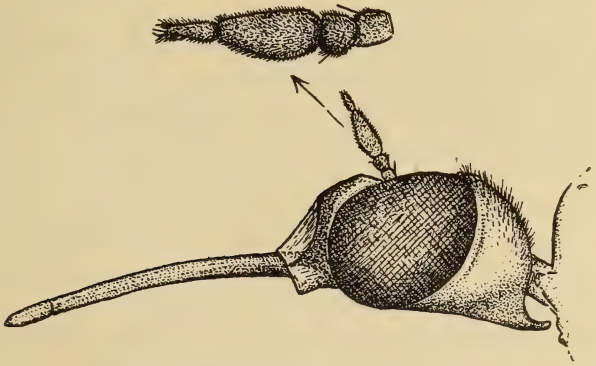
* For *Doliopteryx* n. gen. near *Empidideicus* see Appendix in Part II, vol. xxxv.

Engel (pp. 121–127, loc. cit.) after Paramonow's detailed descriptions and keys. It is, however, evident that the ♂ and ♀♀ before me differ from all the Palaearctic species in having no discoidal cell in the wings and also in having a more distinct and longer basally directed process on head below. These specimens are much nearer to the Subgen. *Cyrtisiopsis* Séguy (*see* Engel, p. 9, Lief. 65, and p. 120, Lief. 69, loc. cit.), to the species *melleus* Lw., of which there appears to be much external resemblance (cf. text-fig. 58, Engel, loc. cit.) but from which they differ in having no discoidal cell in the wings, a much longer and more spine-like process in neck region on head below, etc. In view of the constant absence of a discoidal cell and the other slight differences, a new subgenus *Ceratolaemus* is proposed for this South African representative of *Platypygus*.

Ceratolaemus n. subgen.

The characters of *Platypygus* and the new subgenus are:—

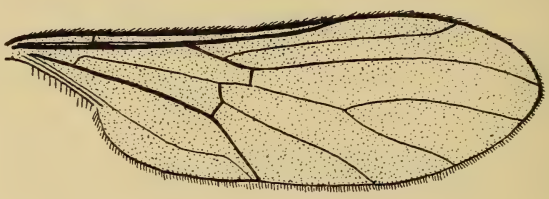
Body small, somewhat elongate and with much yellow markings; pubescence very short and very sparse, the greater part of body being



Text-fig. 299.—Head and antenna of ♂ *Platypygus* (*Ceratolaemus* n. subgen.) *xanthogrammus* n. sp.

almost bare and shining, apparently slightly denser, or at least more evident in ♂, evident only on occipital part, disc of thorax, across posterior margin of scutellum, on abdomen and on legs, entirely absent on pleural parts and very fine on venter, that on femora in ♂ apparently slightly longer and more conspicuous. *Head* (text-fig. 299) elongated, much longer than broad, very different from the usual Bombyliid-head, characterised by a greater development of the posterior part; occipital part and part behind eyes remarkably developed, convex,

the occiput behind ocelli not flattened or depressed, but continuously rounded and convex with the sides behind eyes and together narrowed to neck; head below and behind eyes slightly flattened and produced basally into a backwardly projecting conical process or tooth just below neck and just about touching the prosternal region; eyes slightly shifted forwards, comparatively large in both sexes, contiguous or with their margins only narrowly separated on head below, comparatively broadly separated above on vertex in both sexes and with a minute kink in their inner margins on each side just behind antennal insertions; frons broad in both sexes, very gradually



Text-fig. 300.—Wing of *Platypygus* (*Ceratolaemus* n. subgen.) *xanthogrammus* n. sp.

narrowed apically, distinctly depressed in both sexes and more so apically; facial region in front of antennae somewhat narrow, but rather prominently raised from a side view, appearing carinate, with the face itself, in front of antennal insertions, short and apically slightly raised above level of antennal insertions, the base thus slightly depressed, with the genae narrow, not demarcated from rims of buccal cavity by a distinct groove, with the buccal cavity itself short and narrow; ocelli situated in form of a triangle, but not raised tubercle-like above the surface, the ocelli rather far apart; antennae (cf. text-fig. 299) with the first joints very short, not, or scarcely, longer than second joints, situated close together in the depressed part of head (deeper apical part of frontal depression), with the second joints transverse, with the third joints the broadest, somewhat ovate, broadest nearer base, with a distinct and conspicuous terminal joint at apex of the third, ending apically in some fine bristles and a stylar element, with fine, short, bristly hairs on all the joints; proboscis rather short, stout, horny, covered with fine spinules and with the labella short, narrow and pointed; palps not visible. *Thorax* broader than head, roundly almost semicircularly rounded and convex from side, thus appearing humped, slightly laterally compressed, the front part steep to pronotal region and neck. *Wings* (text-fig. 300) narrowed

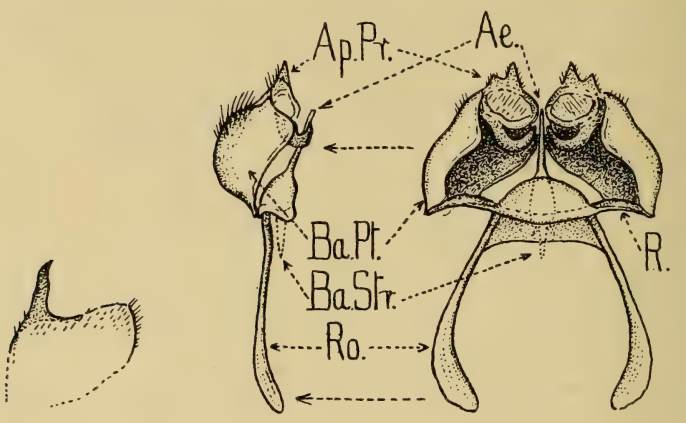
at bases, without any basal comb, with only 1 submarginal cell, without any discoidal cell, with 4 posterior cells of which the first is parallel to axis of wing, opening at apex of wing like a submarginal cell, with the anal cell open, the axillary lobe poorly developed and not very broadly lobate, with the alula wanting and with the microtrichiae along hind border and apical border well developed and with the fine, microscopic hairs on surface of wings more conspicuous than in the following genera. *Abdomen* with 7 visible segments above in ♂ and 8 in ♀♀, with the hypopygium of ♂ partly visible externally and with a slight, short, spout-like prominence apically in ♀♀, with the upper apical angle on each side of last sternite in ♂ produced into a long spine-like process (text-fig. 301, *a*). *Legs* without any spines on femora or distinct spicules on tibiae, only short hairs being present, the apices of tibiae, however, with small spurs below; claws and pulvilli well developed, with the apical joint of tarsi provided with 3 longish bristly hairs apically above. *Hypopygium* of ♂ (text-fig. 301, *b*) with the basal parts (Ba.Pt.) as shown in figures; the apical process (Ap.Pr.) in form of a bidentate structure; aedeagal complex with the aedeagus (Ae.) distinct and slender and joined on to basal parts by a ramus (R.) on each side; the basal strut (Ba.Str.) and lateral struts cannot be distinctly made out and are minute in contrast with the same structures in *Onchopelma* and *Empidideicus*; the basally directed rod on each side (Ro.) is, however, distinct.

This genus and subgenus differs from all other South African *Cyrtosiinae* by the peculiar type of elongated head, the great development of the occipital region and the presence of a horizontal, backwardly directed, dentate process on head below. From the description of *Cyrtosia* Perr. (Perris, p. 55, Ann. Soc. Ent. Fr., vol. viii, Pl. 7, figs. *a–i*, 1839) and Becker (p. 436, Ann. Mus. Zool. Acad. Imp. St. Petersb., vol. xvii, 1912) this genus differs by the distinctly more elongate head, presence of a process on head below, absence of visible palps, absence of an alula, presence of only 2 pulvilli, etc. Only one species is known, and this species *P.* (*Ceratolaemus*) *xanthogrammus* n. sp. is also the type of the new subgenus.

1 ♂ 7 ♀♀ *P.* (*Ceratolaemus*) *xanthogrammus* n. sp.

Head above and behind eyes, edges of buccal rims and front part of face just above buccal cavity, proboscis, greater part of thorax above, pectus and broad basal parts of abdominal segments above shining black, the pectoral region, however, duller black; antennae very dark

blackish brown; face just in front of antennae and to a certain extent part of the depression in which antennae are situated, genal parts and interior of buccal cavity, basal membrane of proboscis, a median stripe or band on head below, ending towards apex of backwardly projecting process on head below, the humeral parts of thorax on each side, a triangular spot on each side of thorax above mesopleuron, the posterior calli, entire scutellum, greater part of mesopleuron, pteropleuron, metapleurae in part and a longitudinal band across pleurae just above



TEXT-FIG. 301.—(*a*) Process on each side of last sternite of ♂ of *Platypygus* (*Ceratolaemus* n. subgen.) *xanthogrammus* n. sp. (*b*) Side and ventral views of hypopygium of ♂ of same species.

blackish sternopleural parts, the hind margins of abdominal tergites (broader in ♀♀ and becoming broader towards apex in both sexes), very broad hind margins of, or practically entire, venter in both sexes, pale yellowish; legs, including the coxae, also predominantly pale yellowish, the femora above and the extreme apices of the tibiae very slightly darker in some specimens, with the tarsi becoming distinctly darker and more blackish brown towards apices, the basal part being yellowish; pubescence short, slightly denser and more evident in ♂, denser and shorter on occipital part in both sexes, also shorter on abdomen than on thorax, entirely dark blackish brown, but having a paler sericeous sheen in certain lights, that towards apical part of abdomen above, however, paler and more sericeous in certain lights and that on venter sericeous, that on coxae short, sparse and pale, that on femora dark and slightly longer and more evident in ♂, that on tibiae and tarsi also dark, but all the hairs on legs with a slight

sericeous sheen in certain lights; wings (text-fig. 300) with a distinct, but faint, yellowish brownish tinge, iridescent, with the veins dark brownish to blackish brown in basal half and in costal part, becoming slightly paler towards apex, with the first basal cell distinctly longer than second one, with the squamae opaquely yellowish and with a very sparse fringe of short, pale hairs; halteres yellowish, with the knobs more or less slightly brownish above and almost white below. *Head* (text-fig. 299) subequal to, or only a little shorter than, thorax (without scutellum), with the ocelli yellowish or yellowish red, with the interocular space on vertex equally broad in both sexes, not quite 2 times as broad as distance between two posterior ocelli, the inner margins of eyes only gradually narrowing anteriorly, appearing almost subparallel; frons deeply impressed, slightly deeper anteriorly; antennae (text-fig. 299) situated in anterior depression of frons, with the joints as described for the genus and as shown in text-figure; proboscis about $\frac{4}{5}$–1 mm. long. *Hypopygium* of ♂ (text-fig. 301, *b*) as described for the genus. The different structures are very difficult to make out even under a very high power and the basal strut in this figure is more or less suppositional.

Types in the British Museum.

Length of body: about $2\frac{1}{4}$–$2\frac{1}{2}$ mm.

Length of wing: about $2\frac{1}{2}$–3 mm.

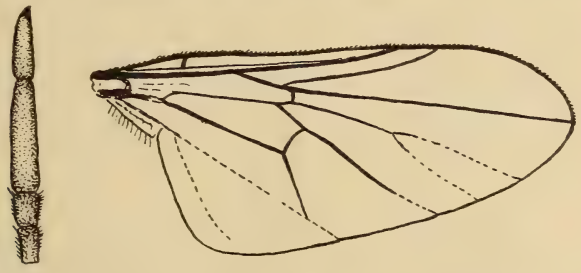
Locality.—Natal: Weenen (Thomasset, 5/1924) (Holotype); (Thomasset, 8/1924) (Allotype); (Thomasset, 4/1924, 6–7/1923).

Onchopelma n. gen.

Body with the integument shining, especially above, with much yellow markings, especially in ♀♀; pubescence very fine and soft, on the whole sparse, longer than in the other described Cyrtosiine-genera, longer and denser on ocellar tubercle, sides of thorax, on humeral parts and on mesopleuron, sparser but not much shorter on abdomen, distinctly denser and more conspicuous in ♂, that on legs also fine, sometimes longer than in the other genera, that on femora, especially in ♂, slightly longer than on tibiae, the greater part of head, including frons, face, genae and sides of head behind eyes and greater part of pleurae and pectus, however, bare, especially in ♀♀, with the pubescence on venter short and fine. *Head* subglobular, about as broad as thorax; occipital region normal, somewhat flattened or slightly hollowed out medially below ocellar tubercle; ocelli situated in a triangle on vertex, slightly raised above surface; eyes

large, very broadly separated above in ♀♀, in actual contact above in known ♂, with the upper facets in ♂ distinctly coarser than lower ones, with the inner margins of eyes above in ♀♀ subparallel or only slightly converging apically; frons broad and more or less convex in ♀♀, with only a very faint indication of a central longitudinal depression at about middle and sometimes with a slight transverse depression apically, with the frons very small and triangular in ♂; face in front of antennae sloping down to meet buccal cavity at an oblique angle, the front thus slightly prominent; buccal cavity well developed, deep and broad, its upper edge rectangular, its sides edge-like and without any or with a scarcely perceptible indication of a depressed line separating them from eye-margins, distinct genal regions thus wanting or scarcely indicated; antennae (text-fig 302, *a*) well developed, distinctly quadriarticulate, the fourth or terminal element being conspicuous, joint-like, broad and ending in a stylar element, with the first joints close together, slightly longer than the second joints and smoother or less pubescent than the other joints, with the second joints longer than broad, with the third joints the longest and slightly broader nearer base, slightly flattened on inner side; proboscis shortish and comparatively stout or plump, the labella well developed and with fine hair-like spinules; palps small and not easily discernible, hidden in basal sheath on each side of proboscis. *Thorax* roundly convex from side, humped in appearance, but to a less extent than in other Cyrtosiines; scutellum transverse. *Wings* (text-fig. 302, *b*) with a marginal cell present, but with only 1 submarginal cell, with 4 posterior cells and without a discoidal cell, with the anal cell acute apically and stalked, with the vein separating submarginal cell and first posterior cell and that between anal and axillary cells markedly straight, with the first basal cell distinctly much shorter than second one, with the axillary lobe well developed and more broadly lobate than in other Cyrtosiines, with the alula reduced or wanting, with the squamae small and much reduced; halteres shortish and with subglobular or oval knobs. *Abdomen* with 7 visible segments in ♂ and 8 in ♀♀, with the greater part of the ♂-hypopygium exposed, and with the upper apical angle of last sternite in ♂ very sharply and angularly produced (text-fig. 304, *a*). *Legs* comparatively stout and shortish; femora without any spines below; tibiae on the whole short and even hind ones not longer than the femora, without any distinct long spicules, but with short, bristle-like or spine-like hairs especially below, but with short apical spurs below; tarsi on the whole short and stoutish, the hind ones in

♂ more slender and elongate than in ♀♀, with the basal joint of hind tarsi in ♂ (text-fig. 303) produced basally into an outwardly directed, curved, hook-like process, covered with hairs and having a long, spine-like bristle projecting outwards and upwards; claws and pulvilli well developed, but slightly more so in ♀♀. *Hypopygium* of ♂ (text-fig. 304, *b*) with distinct bristly hairs on basal parts (Ba.Pt.), the basal parts connected to aedeagal complex by their prolonged basal part; apical processes (Ap.Pr.), corresponding to the beaked apical joints of Bombyliines, lobe-like and having a stoutish hook



(*a*) (*b*)

Text-fig. 302.—(*a*) Right antenna of ♂ *Onchopelma pulchella* n. gen. and n. sp. (*b*) Right wing of same.

ventrally at their bases; aedeagal complex with the aedeagus (Ae.) slender, with the basally directed rod (Ro.) on each side slender, and also with a ventrally directed apically curved rod on each side (V.Ro.); lateral struts (L.Str.) well developed; basal strut (Ba.Str.) without a process on each side, very broad and with a flattened laterally extended flange dorsally on each side (best seen in the figures).

This genus is easily recognised by the wing-characters, the quadriarticulate antennae, the short and stoutish proboscis, shortish legs, and remarkable hook at base of basal joint of hind tarsus in ♂. In this latter respect alone this genus is unique in South African *Bombyliidae*. There is no other known South African genus with which this genus can be compared. Superficially the ♀♀ resemble some ♀♀ of *Heterotropinae* and of *Phthiria* in the extensive yellow markings, but the wing-characters and other generic characters are entirely different. It shows no resemblance to the other South African *Cyrtosiinae* described in this paper. The genotype is *O. pulchella* n. sp.

The two known species may be separated as follows:—

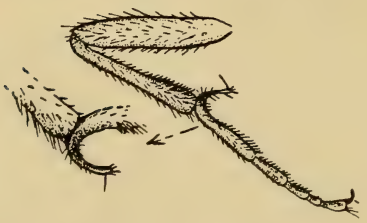
1. (2) Body with more black, even in ♀, the entire occipital region and basal part of frons shining black, the thorax above entirely shining black in ♂ and with very extensive black markings in ♀, the abdomen pre-

dominantly shining black and with only the hind margins ivory yellowish or whitish, the pleurae entirely shining black; antennae darker and much longer, with joint 3 much longer than 1 and 2 combined; frons in ♀ much broader, quite, or even slightly more than, 2 times as broad as ocellar tubercle on vertex; face in ♀ longer; proboscis distinctly more slender, with shorter labella; pubescence on body and legs slightly longer . . . . . ♂ ♀ *pulchella* n. sp. (p. 976).

2. (1) Body in ♀ at least predominantly yellow, only the medial part of occiput black, with only 3 black stripes on thorax above, the abodmen predominantly yellow, with only a transverse black fascia at bases of tergites 1–3 and a central and lateral row of black spots on the others, the pleurae and venter entirely yellow; antennae shorter, with joint 1 and 2 yellow, with joint 3 very much shorter, subequal to 1 and 2 combined; frons much narrower, distinctly less than 2 times as broad as tubercle on vertex; face much shorter; proboscis distinctly much plumper and stouter, the labella longer and more developed; pubescence on body and legs slightly shorter . . ♀ *trilineata* n. sp. (p. 978).

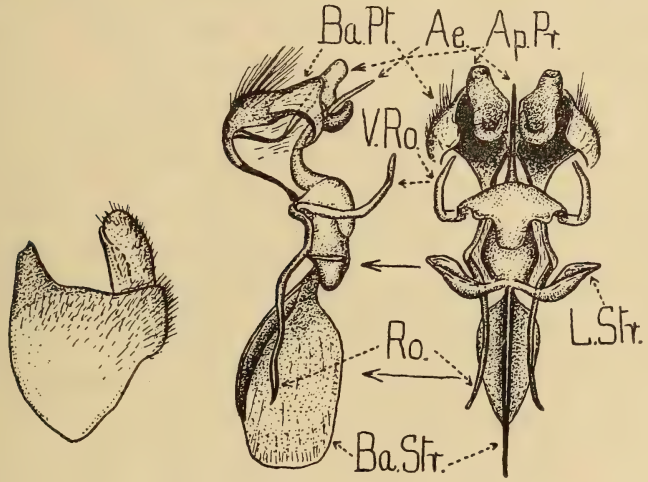
1 ♂ 1 ♀ *O. pulchella* n. sp.

Body with the entire occipital region, sides of head behind eyes, the proboscis, head below, the thorax, scutellum, pleural and pectoral regions in ♂ brilliantly shining black; in ♀ with the occipital region, basal half of frons, base of head below, proboscis, pleural and pectoral regions, a very broad central stripe on disc of thorax, broadened anteriorly and posteriorly, a broad sublateral S-curved mark on each side, coalescing posteriorly with central stripe, an elongate oblique spot on each side of thorax just above wing-bases, a lateral stripe on each side from humeral angle to base of wing and the posterior half of scutellum brilliantly shining black; frons in ♂, front half of frons in ♀, face in both sexes, excepting only the slightly brownish or darkened medial part, the genal part in both sexes, the sides of head broadly behind eyes and front part of head below in ♀, a large triangular spot on each side across humeral angle and front part of thorax in ♂, two narrow medial stripes on thorax in ♀, becoming broader anteriorly on each side and directed outwards across humeral part, the broadish sides of thorax in ♀ coalescing with humeral part of central stripes and surrounding oblique black spot on each side,



TEXT-FIG. 303.—Right hind leg of ♂ *Onchopelma pulchella* n. gen. and n. sp. showing hook at base of tarsus.

the posterior callar regions in ♀, the basal half of scutellum in ♀, and upper margin of mesopleuron in ♀ very pale ivory yellowish (pale areas in ♂, however, slightly more ivory whitish); abdomen above brilliantly shining black, with the hind margins and sides of segments narrowly ivory yellowish in ♂, slightly broader and more pale yellowish in ♀, with the venter entirely yellowish in ♀, but with large, transverse, discal and rectangular shining black spots in ♂, only the sides and hind margins being almost whitish; legs with the coxae blackish



Text-fig. 304.—(*a*) Last sternite of ♂ of *Onchopelma pulchella* n. gen. and n. sp. (*b*) Side and ventral views of hypopygium of ♂ of the same species.

brown, more so in ♂, the femora, tibiae and basal joint of tarsi very pale, almost whitish, paler in ♂, with the extreme bases of femora in ♂, especially front ones, infused with blackish brown, with the apical parts of tarsi yellowish brown, slightly darker in ♂, the apices of claws black; antennae predominantly blackish brown, joints 1 and 2 slightly paler and more yellowish brown; pubescence longer and denser in ♂, especially on sides of thorax and on abdomen above, entirely silvery whitish in ♂, that on occiput and intermixed ones on ocellar tubercle in ♀ darker and more brownish in certain lights, the rest of the pubescence on thorax and abdomen also silvery whitish as in ♂, that on legs whitish in both sexes, that on tibiae below and towards apices tending to be more sericeous yellowish, with the hairs on femora slightly longer towards apices and more so in ♂; wings (text-fig. 302, *b*) entirely hyaline, iridescent, with the veins

pale yellowish brown, very pale yellowish at extreme base of wings and at ends of veins, and with the veins enclosing second posterior cell whitish, with the squamae opaquely whitish to yellowish white and fringed with short pale hairs; halteres whitish and with whitish knobs. *Head* with the eyes in ♂ in actual contact above, from a little in front of tubercle, for a distance at least 2 times as long as tubercle, with the interocular space on vertex in ♀ broad, about 2 times as broad as ocellar tubercle; frons in ♀ with a slight central depressed line in basal half, with a fairly conspicuous, black, shining, slightly depressed, facet-free spot on each side opposite antennae on inner margins of eyes in ♀; face longer, broader and more developed in ♀; antennae (text-fig. 302, *a*) rather long, finely pubescent, with joint 1 a little, but distinctly, longer than 2 in ♀, scarcely longer than 2 in ♂, with 3 elongate and in ♀ at least about 1½ times as long as 1 and 2 combined, with joint 4 about 2 times as long as 2 in ♀, subequal to 1 and 2 combined in ♂, with a minute stylar element at apex of 4; proboscis about 1 mm. long. *Legs* with the basal part of basal joint of hind tarsus in ♂ produced into a hook-like curved process as shown in text-fig. 303. *Hypopygium* of ♂ (text-fig. 304, *b*) as described for genus, with the basal strut (Ba.Str.) very broad and racket-shaped.

Types in the British Museum.

Length of body: about 3½ mm.

Length of wing: about 3 mm.

Locality.—S.W. Africa: Great Namaqualand; Aus (Turner, Jan. 1930).

2 ♀♀ *O. trilineata* n. sp.

Body above and below predominantly pale chrome yellowish, with the following shining black regions: the medial part of occipital region, the proboscis, three longitudinal stripes on thorax above of which the central one does not reach the base and the lateral ones are broadened anteriorly and indented on the outer side at level of wings and do not reach the shoulders, a broad transverse band across basal halves of tergites 1–3 and a central row of segmental spots and a row of smaller lateral segmental spots on each side at bases of the rest of the tergites, all becoming smaller apically; eyes and antennal joints 3 and 4 blackish brown, the bases of the third joints sometimes tending to be yellowish; legs predominantly chrome yellowish like rest of body, only the last tarsal joint of hind tarsus and the apices of all the claws blackish, with the apical parts of the front and middle tarsi and sometimes the coxae sometimes slightly darker yellowish;

pubescence on the whole sparser and shorter than in ♀-*pulchella*, that towards apex of abdomen slightly longer than at base and on thorax, that on femora and tibiae much shorter and less conspicuous than in *pulchella*, with all the hairs gleaming pale sericeous yellowish; wings clear hyaline, iridescent, with the veins pale yellowish, with the ends of those on hind border whitish and those enclosing second posterior cell almost entirely whitish, with the squamae opaquely pale yellowish white and fringed with pale hairs; halteres pale yellowish, with the knobs whitish. *Head* with the interocular space on vertex about 1½ times as broad as ocellar tubercle; frons narrower than in ♀ of *pulchella*, with a central depressed line, with the smooth, depressed, black, shining spot along inner margins of eyes on each side, opposite antennae, inconspicuous and scarcely evident; face slightly shorter than in ♀ of *pulchella* and slightly depressed on each side basally; antennae comparatively much shorter than in *pulchella*, with the smoothish first joints subequal in length to second joints, with joint 3 subequal in length to 1 and 2 combined, slightly broader just before base, with joint 4 a little more than half as long as 3 or subequal, or a little longer than, joint 2; proboscis stout and plump, about 1 mm. long, stouter than in ♀ of *pulchella*, the labella distinctly longer and more developed.

Type in the British Museum.

Length of body: about 3–3½ mm.

Length of wing: about 3–3½ mm.

Locality.—S.W. Africa: Great Namaqualand; Aus (Turner, Jan. 1930).

As is evident from the description these ♀♀ differ from the ♀ of *pulchella* practically only in colour and some details. In view of the absence of the ♂ it is advisable to refer them provisionally to a separate species, but there is a probability that *pulchella* may be a variable species and that *trilineata* may prove to be only a yellow variety of it.

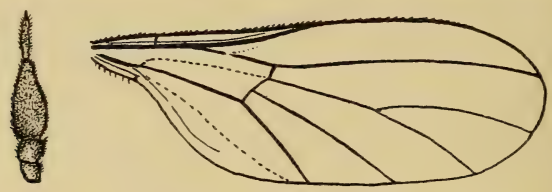
Gen. *Empidideicus* Beck.

(P. 97, Zeit. f. Hymen. u., Dipt. vii, 1907; Engel, p. 100, Die Fliegen. d. Pal. Reg., Lief. 69 (Bombyliidae), 1933.)

The general characters of this genus, based on the South African material before me, are as follows:—

Body small, with much yellow markings; pubescence remarkably short, practically only present on body above, apparently slightly denser in ♂♂, that on occipital region short and scarcely visible, that

on thorax above denser and pubescent, only a few on each side in front of wings slightly longer and more distinctly bristly, that on abdomen above also very short and pubescent, the pleural parts bare, that on legs very fine and pubescent and apparently more evident in ♂♂. *Head* subglobular, slightly longer than high, with the occipital region normally developed, but only slightly flattened medially behind ocelli, not very deeply excavated lower down; eyes slightly shifted forwards, large, broadly separated above on vertex in both sexes, with the inner margins converging apically, the space across vertex thus broader than space across front part of frons,



(*a*) (*b*)

Text-fig. 305.—(*a*) Antenna of *Empididdeicus turneri* n. sp. (*b*) Right wing of *Empididdeicus turneri* n. sp.

with the eyes also broadly separated on head below, the median lower part of head being longitudinally sulcate; ocelli situated rather transversely, the front medial ocellus only a little in front of the widely separated hind ones; frons depressed in both sexes, deeper in front, with the sides subcarinately prominent or edge-like and more or less subparallel; facial part narrow, slightly carinately prominent from side, the face itself depressed basally just in front of antennae and continuous with apical depressed part of frons, then horizontal or step-like to buccal cavity, which is also narrow, its rims raised and edge-like and not visibly separated by a groove from margins of eyes; antennae (text-fig. 305, *a*) with the first joints very close together and very short, narrower than second joints, with the latter transverse and slightly longer than the first, with the third joints broad, usually ovate, usually broadest at base and more rapidly narrowed towards apex on lower side, covered with short bristly hairs, which are slightly longer on inner side, with the third joints ending in a long, slender, terminal joint, which itself ends apically in an obscure stylar element and some short bristly hairs; proboscis rather stumpy, shortish, stoutish, but tapering apically, the labella pointed; palps minute, hidden by basal sheath of proboscis and only visible as a very short, bristle-like process at base of proboscis on

each side. *Thorax* only very little, or scarcely, broader than head, roundly convex or humped in appearance from side; pronotal ledge in neck region not visible as in *Platypygus*; scutellum triangular, transverse and somewhat tumid. *Wings* (text-fig. 305, *b*) unique in having the marginal cell as well as a second submarginal cell wanting, this marginal cell which is present in all other South African *Bombyliidae* is entirely absent or only indicated as a vestigial or very minute cell at base of submarginal cell and the latter occupies the position of the normal marginal cell, with 4 posterior cells present and without a discoidal cell, with the anal cell open at end, with the alula not developed and without any basal comb, with the squamae rather narrowish and small. *Abdomen*, when not telescoped, with 7 visible segments in ♂♂ and 8 in ♀♀, and with the hypopygium in ♂♂ partly visible externally, and with the upper apical angle of last sternite in ♂♂ sharply produced. *Legs* without any spines on femora below and without any distinct spicules on tibiae; claws and pulvilli well developed. *Hypopygium* of ♂♂ (text-figs. 306 and 307) with the basal parts (Ba.Pt.) small and shell-like; apical process (Ap.Pr.) lobe-like or knob-like, having a prominent hook at its base ventrally; aedeagus (Ae.) shortish and tubular; rods (Ro.) on each side of base of aedeagus very prominent and long; lateral struts (L.Str.) prominent and well developed; basal strut (Ba.Str.) peculiar in having a medial dorsal apically directed process and also a dorso-ventrally flattened process on each side as shown in the figure.

The known South African species of the *Empididaeicus*-series may be separated as follows:—

1. (6) Wings without a discoidal cell; thorax discally either black and with narrow yellowish longitudinal lines or with triangular yellowish spots on humeral angles, anterior angles and posteriorly or it is discally predominantly yellow . . . . . 2.
2. (5) Palps very short, minute, vestigial and inconspicuous; terminal element of antennal joint 3 distinct, longer and more conspicuous; body, notwithstanding the yellow markings, predominantly black above or with much black, the black on thorax above predominant and only the hind margins of tergites yellowish . . . . . 3.
3. (4) Terminal element of antennal joint 3 long, slender and rod-like and quite half as long as joint 3; proboscis shorter and shorter than head and pectus combined; thorax discally with 2 very narrow, parallel, yellow lines and with yellow markings on side, the larger one in front of wings on each side with a conspicuous black spot . ♂ ♀ *turneri* n. sp. (p. 982).
4. (3) Terminal element of antennal joint 3 short and thick; proboscis longer, as long as head and pectus combined; thorax discally above with a triangular yellow spot on anterior angle and connected with it on each

side a humeral spot and also with an elongate yellow spot near hind angles and without a conspicuous black spot in yellow in front of wings (? ♀) *beckeri* Bezz. (p. 985). (Ex. descr.)

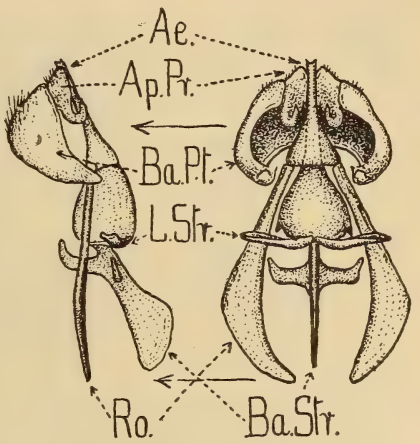
5. (2) Palps very long and conspicuous and as long as proboscis; terminal element on antennal joint 3 very short, broad and inconspicuous; body predominantly yellow, only 3 obscure darkish lines on disc of thorax and the abdomen yellow . . (? ♂) (*Glabellula*) *mellea* Bezz. (p. 985). (Ex. descr.)

6. (1) Wings with a distinct discoidal cell; thorax discally entirely black or dark and only the sides more or less continuously yellow ♂ ♀ *E.* (*Anomaloptilus* n. subgen.) *celluliferus* n. sp. (p. 983).

4 ♂♂ 8 ♀♀ *E. turneri* n. sp.

Body predominantly black; the extreme apical depression of frons, face (excepting only dark front part just above buccal cavity), edge-like buccal rims, longitudinal sulcus on head below, the basal sheath of proboscis to a certain extent, the declivous neck region on thorax in front, 2 medial longitudinal stripes on disc of thorax, broadened in front and posteriorly where at base they more or less coalesce, the humeral parts, a triangular spot on each side just above mesopleuron and continuous with humeral spot, a large spot on each side of thorax just above wings, connected medially with the central stripes and enclosing an oval black spot, the posterior calli, the entire or at least greater part of scutellum, the upper parts of pleurae and along sutures of rest of pleurae, the hind margins of tergites, becoming much broader towards apex and distinctly broader on the sides (the latter usually enclosing a row of shining, black, segmental, spiracle-like spots on each side), the hind margins of the ventral segments, the exposed parts of ♂-hypopygium and the genital segment of ♀♀ in part, pale lemon yellowish to yellow, slightly more evident in ♀♀; legs predominantly yellowish, the basal two-thirds of femora in ♂♂ distinctly much darker and even more blackish brown than in ♀♀, where the femora are sometimes almost entirely yellowish, with the apices of joints 1 and 2 and entire joints 3–5, or apical halves, of the tarsi as well as the claws dark or black in both sexes; pubescence on entire body and legs with a sericeous yellowish or silky sheen in certain lights, that on occipital part and sides of thorax appearing dark in certain lights, that on antennal joints dark, that on legs more apparently silky or sericeous; wings (text-fig. 305, *b*) greyish hyaline, slightly more greyish in certain lights, iridescent, with the veins very dark brownish to blackish brown, especially

along costal and main veins, the veins separating basal cells and anal and axillary cells whitish, with the first basal cell only a little longer than second one, with the squamae opaquely yellowish; halteres lemon yellowish, with much paler yellowish to pale yellowish white knobs. *Head* with the interocular space on vertex in both sexes a little less than 2 times the distance between 2 posterior ocelli, the inner margins of eyes from vertex converging anteriorly, the distance across front part of frons much less than across vertex; frons itself with subparallel, slightly ridge-like sides, the surface deeply depressed and more so anteriorly; antennae (text-fig. 305, *a*) with joints 1 and 2 very short, with 1 slightly shorter and narrower than 2, with 3 the broadest, somewhat flattened, ovate, broadest at base, more rapidly narrowed along inner side, nearly 2 times as long as 1 and 2 combined, ending apically in a long, slender terminal joint, about, or a little more than, half as long as 3 and itself ending in a stylar element and short bristly hairs; proboscis from a little less than $\frac{1}{2}$ to $\frac{1}{2}$ mm. long. *Hypopygium* of ♂ (text-fig. 306) with the apical processes (Ap.Pr.) of basal parts (Ba.Pt.) knob-like or lobe-like; rods (Ro.) broadish and sabre-shaped; basal strut (Ba.Str.) with the lateral process on each side and apically directed dorsal process well developed. (All these structures are better made out from the figures.)



Text-fig. 306.—Side and ventral views of hypopygium of ♂ *Empididеicus turneri* n. sp.

Types in the British Museum.

Length of body: about $1\frac{1}{2}$–$1\frac{2}{3}$ mm.

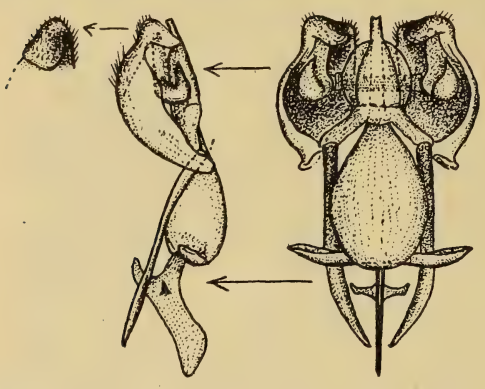
Length of wing: about $1\frac{1}{5}$–$1\frac{2}{3}$ mm.

Locality.—S. Cape Province: Mossel Bay (Turner, Feb. 1922) (Types); Somerset East (Turner, 1–26/1/31, 23–31/12/30, 25–30/11/30).

2 ♂♂ 3 ♀♀ *E.* (*Anomaloptilus* n. subgen.) *celluliferus* n. sp.

These specimens are almost indistinguishable from *Empididеicus turneri*, but as there is one very important and constant distinguishing

character present in all the specimens it is desirable to refer them to a new subgenus *Anomaloptilus*. Structurally this new subgenus does not differ from *Empididеicus* s. str., but the constant presence of a distinct discoidal cell in the wings at once distinguishes it from the latter. In addition the *hypopygium* of the ♂ (text-fig. 307) also differs in having the basal parts distinctly more widely separated dorsally, the two parts being connected by a strap-like band, in having the apical processes to basal parts distinctly more developed, more projecting flap-like and overhanging (*see* the figures), in having the hook-like process on each side at base ventrally of the apical process stouter and more conspicuous, etc. The new species *celluliferus*, apart from these subgeneric differences, differs from *turneri* also in having the thorax above predominantly black, there being no discal, central, narrow, yellowish lines. Only the anterior broadened parts of these lines are represented anteriorly on each side as a yellow spot, confluent with the yellow on humeral part and the sides of thorax are also yellow, the black on the disc thus more or less continuous with the yellow on sides and not broken up into more or less 3 large black spots on each side by a central yellow line and its offshoots as in *turneri*.



Text-fig. 307.—Side and ventral views of hypopygium and apical or dorsal view of apical lobe of basal part of ♂ *Empididеicus* (*Anomaloptilus* n. subgen.) *celluliferus* n. sp.

Types in the British Museum.

Length of body: about $1\frac{1}{2}$–$1\frac{2}{3}$ mm.

Length of wing: about $1\frac{1}{5}$–$1\frac{2}{3}$ mm.

Locality.—S. Cape Province: Mossel Bay (Turner, 15/3/–20/4/32) (Types); Mossel Bay (Turner, Feb. 1922). N. East Cape Province: Aliwal North (Turner, Dec. 1922).

E. beckeri Bezz.

(P. 180, Denkschr. Med. Nat. Ges. Jena, Bd. 13 (Bombyliidae) 1908.)

A single specimen (? ♀) of this species was described by Bezzi from material collected at Steinkopf in Namaqualand by members of Schultze's Forschungsreise. According to the description this species is characterised by having a strongly convex occipital region, small eyes which are broadly separated, large buccal cavity, small palps, longish proboscis which is as long as the head and pectus combined, an oval third antennal joint with a short and thick terminal element, by having a triangular yellow spot anteriorly on each side of thorax which is confluent with another on humeral angle, an elongate yellow spot on hind angles, yellow pleurae with triangular black spots below, a large and yellowish scutellum, large pale yellowish halteres, by having pale pubescence on occiput and abdomen, the latter of which has yellowish white hind margins, by having longish legs which are yellow and with only the tarsi darkened and wings which are hyaline and with a venation as described by Becker for *Empididеicus*. The length of body is given as $1\frac{1}{2}$ mm. and the wings as 2 mm.

From the description there appears to be very little doubt that this species is a true *Empididеicus* and somewhat resembling *turneri* or *celluliferus*, from which I have endeavoured to separate it in the key.

Glabellula mellea Bezz.

(Pp. 180–181, loc. cit., fig. 1, A and B, 1908.)

This peculiar species was also described by Bezzi from the same locality as the preceding species. According to Bezzi's description, it (? ♂) appears to be chiefly characterised by having an entire yellow body, only three obscure darkish lines being present on thorax above, by having very long and conspicuous palps which are as long as the proboscis, smallish eyes, a very short and broadish terminal element to the third antennal joint (cf. Bezzi, fig. 1, B, loc. cit.) and by having a slightly aberrant type of wing (cf. Bezzi, fig. 1, A, loc. cit.) in which some of the veins are yellowish and others colourless. Bezzi himself appears to be doubtful as to the generic identity of this species, stating that it appears to be transitional between *Empididеicus* Beck. and *Glabellula* Bezz., but differs from the known species of the latter in having very elongate palps, no second longitudinal vein and no discoidal cell in the wings.

As stated by Bezzi, there is no doubt that this species will eventually

have to be removed to a separate and new genus or at least to a new subgenus of *Empididеicus*. As in the case of other Bombyliids, such as *Apolysis*, *Phthiria* and *Oligodranes*, which are adapted to, or are associated with, an existence in or on certain kinds of flowers, the representatives of the *Cyrtosiinae* also appear to show certain directions in the evolution of certain characters which have probably been brought about by an adaptation to specific types of floral environment.

Subfam. *Cythereinae.*

The peculiar genus *Oniromyia* Bezz. has been referred to this subfamily by Bezzi (p. 71, Ann. S. Afr. Mus., vol. xviii, 1921). Apart from this genus there appears to be no other South African representative of this subfamily in the extensive collections before me. According to Becker (pp. 433 and 455, Ann. Mus. Zool. Acad. Imp. St. Petersb., vol. xvii, 1912), the chief distinguishing characters of this subfamily are the broadly separated antennae, very broad vertex, long proboscis, broad head, non-marginated or non-bisected eyes and the position of base of the second longitudinal vein, which arises from the third longitudinal vein a good distance away from the base of the latter and thus nearer or just in front of discal cross vein, where it is usually bent at right angles to third vein, much like the condition in the *Anthracinae* and *Exoprosopinae*. *Oniromyia* Bezz., however, appears to depart from this diagnosis in having the antennae more approximate, narrower wings in which the second longitudinal vein, though arising far away from base of third vein, is also far away from discal cross vein and is not markedly bent at right angles to third vein. Moreover, the reduction of the ocelli is another character not mentioned in the case of the Palaearctic forms. Not being acquainted with the Palaearctic representatives of this subfamily, it is impossible for me to verify the inclusion of *Oniromyia* in this subfamily, and provisionally this genus is retained in it.

Gen. *Oniromyia* Bezz.

(P. 71, Ann. S. Afr. Mus., vol. xviii, 1921; Bigot, as ? *Eurycarenus* on p. 371, Ann. Soc. Ent. Fr. lxi, 1892, and also as "*Xethomyza*" on a determination label, 1892.)

The genotype specimen on which Bezzi based his generic description is not a ♀ but a ♂, and his statement that "the male is still unknown" is thus incorrect and to him it was the ♀ that was unknown. A

description of this interesting genus is appended in order to supplement and correct Bezzi's observations.

Body elongate, tapering posteriorly from broad head and thorax, not humped; pubescence with the erect hairs and bristly hairs dense, longish and well developed on head, first antennal joints, thorax above, on scutellum, mesopleuron, in the metapleural tuft, sides of tergite 1, on sternites 1 and 2 ventrally and on last tergite and sternite in both sexes, the pubescence on head and front part of thorax being denser, more conspicuous and more shaggy, slightly denser and longer in ♂♂, with the rest of the pubescence in form of depressed, flattened, elongate scaling, dense on head, especially on sides of frons, anterior part of frons, on genae, along hind margins of eyes, along sides of thorax above, towards base of thorax, on scutellum and very dense on abdomen, especially on sides, dense on mesopleuron, upper parts of sternopleuron, very dense on venter below and also on legs, sparser on frons discally and on thorax above. *Head* well developed, very broad, broader than thorax and distinctly broader than high; occiput flat, but with a slight groove obliquely downwards on each side from eyes to middle; ocelli much reduced and vestigial, the posterior ones widely separated and elongate, subreniform, the median front ocellus wanting or indicated only as a feeble scar-like depression, or even very minute and globule-like, usually in a slightly smoother and more depressed part, about as far removed from each posterior ocellus as these are removed from each other, with the broad area so enclosed distinctly raised, boss-like, but centrally longitudinally depressed, deeper posteriorly (Bezzi's statement that there are "no ocelli and no ocellar tubercle" is thus also incorrect); eyes very large and convex, not leaving much of posterior part of head to bulge as in many other Bombyliid genera, equally and very broadly separated on vertex in both sexes, the interocular space much broader than breadth of one eye; frons thus very broad in both sexes, the sides parallel, with the surface convex, distinctly depressed on each side on vertex at corners of eyes, also with an indication of, or even a distinct, central, depressed line from ocellar boss to the apical transverse depression, with the apical part distinctly transversely depressed in both sexes, the middle of this depression, just in front of antennae, forming a slightly broader, triangular, bristle-free and scale-free area; face remarkably short, bare, the upper margin of buccal cavity almost reaching antennae; buccal cavity with sharp edge-like rims, separated from a distinct genal region on each side by a groove-like depression, deeper in upper part; antennae not contiguous, but distinctly, though not broadly,

separated, with the first joints much dilated apically, the lower apical part tumidly, globularly or tubercularly prominent, long and shaggy-haired below, with joint 3 the longest, longer than 1 and 2 combined, club-like broadened at base, then slender to apex or sometimes very slightly broadened again apically, with some hairs in apical half, the joint ending apically in a very short basal joint or element and a longish terminal style; proboscis long, tapering to apex, with scaling on labral part above in basal half, with the labella slender and elongate; palps rather short, no distinct joints separately visible. *Thorax* with the lower part of sternopleuron, the pteropleuron and metapleural part, excepting only for a tuft of scaling below halteres, bare; scutellum broadish, transverse and somewhat truncate across hind margin. *Wings* (cf. Bezzi, Ann. S. Afr. Mus., vol. xviii, Pl. 1, fig. 13) remarkably narrow and feeble for the size of the insect, the base very narrow, the alula being absent and axillary lobe very narrow, with 2 submarginal cells and 4 posterior cells of which the first is closed apically and provided with a short or very short stalk, with the third posterior cell very much narrower on hind border than on discoidal cell, with the vein separating submarginal cells directed obliquely forwards and almost straight, with the anal cell open and its supernumerary vein long and well developed, with the discal cross vein a little or even much beyond middle of discoidal cell, without any basal comb to wings and with narrow and rather long squamae. *Abdomen* elongate, tapering posteriorly, with the last tergite (sternite) in ♂♂ elongate and scoop-like. *Legs* rather powerfully developed and stoutish; femora with some distinct spines on hind ones below; tibiae with at least 4 rows of well-developed spicules on middle and hind ones and with long and stoutish spurs apically below on all of them; claws and pulvilli well developed. *Hypopygium* of ♂ (text-fig. 308) showing dorsal, lateral and ventral views; basal parts more or less separate, divided by a sutural depression, especially basally above, deeply foveately depressed above (*see* left-hand figure), with some fine hairs on each side dorsally, with the apical part of each basal part provided with short, dense spines; the beaked apical joints of Bombyliines represented by immovable apical parts or processes (Ap.Pr.), shaped as in figures and provided with spines and hairs at their apices; aedeagal complex with the aedeagus (Ae.) conspicuous and well developed, curved upwards, with the aedeagal complex joined on to basal parts on each side by a ramus (R.) (also shown between right-hand figures) above which there is on each side a shell-like plate or process (*see* right-hand figure); lateral struts small. The sides of

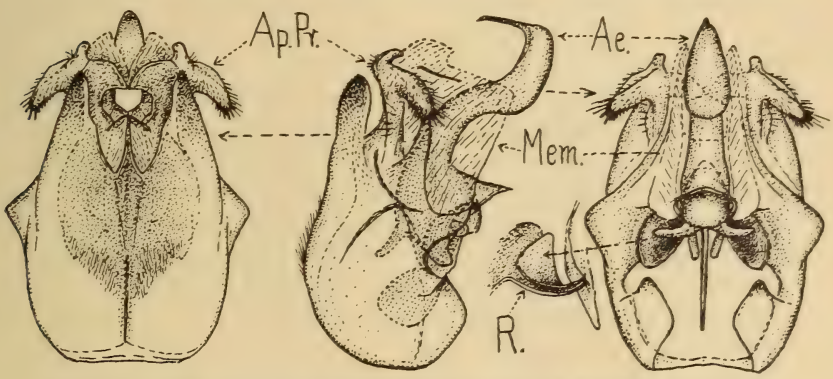
basal part on each side of aedeagus are produced into a membranous flap (Mem.).

This genus is peculiar in having shortish, very narrow and feebly developed wings, with narrow base, very broad head and interocular space in both sexes, much reduced ocelli and dense scaling on proboscis above. The genotype is *O. pachycerata* (Big.), the only known species.

O. pachycerata (Big.).

(P. 371, Ann. Soc. Ent. Fr., lxi, 1892; Bezzi, p. 72, Ann. S. Afr. Mus., vol. xviii, 1921, Pl. I, fig. 13.)

This species was first described by Bigot as questionably belonging to *Eurycarenus* Lw. One ♂-specimen in the South African Museum was, however, labelled by Bigot himself as "*Xethomyza pachycerata*."



Text-fig. 308.—Dorsal, lateral and ventral views of hypopygium of ♂ of *Oniromyia pachycerata* (Big.).

Subsequently Bezzi supplemented Bigot's original description by his own description (p. 371, loc. cit.). To both descriptions the following details may be added:—Hind margins of venter yellowish like the front and middle tibiae and the rims of buccal cavity also yellowish; pubescence with the longish hairs on greater part of frons, those on disc of thorax, on scutellum and at apex of abdomen in both sexes black, those on occiput and narrowly along inner margins of eyes on frons, those across front part of thorax, those on mesopleuron, in metapleural tuft and some intermixed ones on scutellum creamy yellowish to pale yellowish, with the macrochaetal bristles and intermixed bristles on posterior calli slightly more reddish yellow, with the dense hairs on antennae below, sides of frons in front, on head

below, lower part of metapleural tuft, sides of tergite 1, on venter at base, somewhat sparsely on coxae and on femora whitish, those on antennae and head in front more frosty whitish, with the scaling on sides of frons and anterior part of frons dense and white, that on disc of frons sparse, that on occiput yellowish and concentrated in a denser patch just behind tubercle, that behind eye-margins dense and white, that on disc of thorax sparse, dull yellowish and more or less concentrated in three discal stripes, that on sides of thorax denser and white, that at base of thorax and on scutellum dense and yellowish, that on abdomen above denser than on thorax, disposed as dense, snow whitish tufts on each side of the hind margins of the tergites, as conspicuous large patches of velvety black scaling on the sides of tergites and as yellowish scaling in a row of patches on each side discally, as another central row of patches and as transverse bands across the hind margins, with the scaling on pleurae frosty whitish, that on venter very dense and also silvery whitish, that on coxae and legs dense and silvery whitish, that on apices of hind femora, on hind tibiae and on proboscis above velvety black; wings greyish hyaline, with the veins brownish, becoming slightly paler towards base and with a distinct tendency for a darker, blackish brown infusion along apical sinuous part of second longitudinal vein and the vein between the submarginal cells; head with the interocular space in both sexes about 2 times the distance between the posterior ocelli, with the proboscis about 5–6 mm. long. *Hypopygium of* ♂ (text-fig. 308).

Length of body: about 9–11 mm.

Length of wing: about 7–8 mm.

Locality.—Western Cape Province, S. Western Karoo and Namaqualand. (In the British, Transvaal and S. African Museums.)

Subfam. *Systropinae* (*Systropodinae*).

Representatives of this subfamily are very easily recognisable and unique among *Bombyliidae* and even among *Diptera* in having a body-form which very closely resembles that of certain Aculeate *Hymenoptera* (Fam. *Sphegidae*), such as *Sphex*, *Sceliphron* (*Pelopoeus*), and sometimes also that of some *Vespidae*, such as *Belonogaster*. The chief characters of this subfamily are the same as those given for the genus *Systropus* (*see* below), the only Ethiopian genus dealt with in this paper. The several African genera into which Enderlein (p. 70, Wien. Ent. Zeit., xliii, 1926) subdivided this genus are discussed under *Systropus*.

Gen. *Systropus* Wied.

(P. 18, Nov. Dipt. Gen., 1820; p. 359, Aussereurop. Zweifl. Ins., i, 1828; Loew, p. 200, Dipt. Faun. Südafr., i, 1860; Westwood, p. 571, Trans. Ent. Soc. Lond., 1876; Bezzi, p. 102, Ann. S. Afr. Mus., vol. xviii, 1921, and p. 116, The Bombyliidae of the Ethiopian Region, 1924; Engel, p. 85, Die Fliegen d. Pál. Reg. Lief. 67 (Bombyliidae), 1932.)

This genus was based by Wiedemann on a South African species, which he described as *macilentus* (*see* under *macilentus*). Representatives of this genus are very remarkable in that they simulate certain Aculeate—*Hymenoptera*, such as *Sphex* and *Sceliphron* and even *Belonogaster* in body-form. Not only is there a very close morphological and structural similarity, but even the colour pattern is simulated. This structural resemblance is even greater than in the case of other *Diptera*, such as certain genera of *Syrphidae*, *Asilidae* and *Conopidae*, which appear to mimic *Vespidae*. Members of *Systropus* are unmistakable and easily recognisable and are sure to be mistaken for Aculeate-*Hymenoptera* by the layman. They cannot be confused with any other Dipterous genus. All the Ethiopian species are here referred to the genus *Systropus* as was done by Karsch and Bezzi. Enderlein, however, divided *Systropus* into six distinct genera (pp. 69–70, Wien. Ent. Zeit., xliii, 1926) as follows:—

(1) *Coptopelma*, with 3 submarginal cells and with the eyes in contact above in ♀♀.

(2) *Diaerops*, with 3 submarginal cells and with the eyes linearly separated above in ♀♀.

(3) *Dimelopelma*, with 3 submarginal cells and with the abdominal petiole 2-jointed.

(4) *Coptodicrus*, with 3 submarginal cells, a 3–4 jointed abdominal petiole and with the eyes in ♀♀ linearly separated above.

(5) *Symballa*, with 3 submarginal cells, a 3–4 jointed abdominal petiole and with the eyes in ♀♀ in actual contact above.

(6) *Systropus* Wied. s. str. with only 2 submarginal cells and with the eyes in both sexes separated by a very narrow line above.

These distinguishing characters of Enderlein appear to be more specific than generic, and are confusing especially where ♂♂ are concerned. That Enderlein himself was doubtful about the allocation of certain species is proved by the fact that on p. 70 (loc. cit.) *marshalli* Bezz. is placed as the genotype of *Diaerops*, but on p. 91 *marshalli*

Bezz. is again referred, together with *clavatus* Karsch and *sanguineus* Bezz., to the genus *Coptodicrus*.

The chief characters of *Systropus* are as follows:—

Body shaped like that of *Sphex*, *Sceliphron* or *Belonogaster*, with segments 2 and 3 or 2–4 or 5 narrow, cylindrical, forming a kind of stalk or petiole, with the apical segments thicker, forming a knob-like or club-like part, with the metasternal part of thorax greatly developed, supplementing the stalked abdomen and more developed than in any other Ethiopian Bombyliid-genus; pubescence usually in the form of silvery whitish pubescent hairs, rather shortish, not very dense, denser and longer across hind margin of scutellum, on metasternal part behind, on the sides of tergite 1 and towards apex of abdomen, sometimes also denser on posterior part of pteropleuron and on hind coxae, also longish, but sparser, on head below and on lower parts behind eyes, with dark or blackish hairs on antennal joints 1 and 2, finer and more pubescent ones on abdominal stalk, on the club or on part of club and in some species on disc of thorax or in a longitudinal band on each side of disc of thorax, with the propleural callosity, the sternopleuron and sutural part between meso- and metapleurae bare or practically bare, with the third antennal joints also bare, the frons and genal parts of face usually covered with a very fine and short, brilliantly gleaming or silvery white tomentum or pruinescence, with fine and hair-like scaling on legs, sometimes with brilliant silvery pubescence on outer sides of front and middle tibiae, with the silvery pubescence on body sometimes more flattened and more scaly especially on pleural parts and on metasternum, and sometimes with distinct black scaling on abdomen. *Head* broad, quite as broad, or even broader, than thorax, slightly broader than high, short, with the occipital part flattened and depressed, not extending rim-like beyond hind margins of eyes; eyes very large, practically occupying the entire head, in actual contact above for a good distance in both sexes or only very narrowly or linearly separated in both sexes or sometimes contiguous or subcontiguous for a shorter distance in ♀♀, with the upper anterior facets in ♂♂ and in some ♀♀ coarser than the others; ocelli, contrary to Loew's statement that they are wanting, are present and arranged in a triangle, enclosing a tubercle-like prominence on vertex, the lateral ocelli, however, sometimes more linear and small; frons comparatively narrow, more or less convex towards antennal insertions, rapidly narrowed towards vertex, its length depending upon the sex or the contiguity of the eyes, usually shorter in ♂♂ and longer in species with narrowly

separated eyes; antennae elongate, usually close together at base and situated on a slightly boss-like or raised part, with the first joints elongate, slender, the second ones not transverse, always much longer than broad, often quite half as long as third joints, with the latter flattened, laterally compressed, broadish, much broader than first or second joints, slightly narrowed and rounded apically or even slightly pointed and without a visible style or terminal elements; face vertical, usually represented as a central ridge in front of antennae, covered with some distinct hairs; genal part scarcely or only imperceptibly demarcated from buccal rims by a shallow, groove-like depression, more distinct lower down; proboscis usually long, slender, with long and slender labella; palps slender, always visible, more or less pointed, usually somewhat flattened and without any separately visible joints, with only very fine, scarcely perceptible hairs. *Thorax* short and very deep or high from disc to end of metapleural part above hind coxae, the metasternal part strongly developed, pushing the coxal part of hind legs forward, the metasternum itself rugulose and more or less transversely wrinkled behind; scutellum flattened, its hind margin feebly emarginate or subtruncate; a flattened, depressed or foliate scutellar callosity present on each side behind squamae and below base of scutellum. *Wings* (cf. textfigs. 8 and 9 on pp. 122 and 124 in The Bombyliidae of the Ethiopian Region of Bezzi and Wiedemann's figures 6, *a* and *d*, Tab. V, Ausser-europ. Zweifl. Ins., i, 1828) without a basal comb, with 2 or 3 submarginal cells, 3 posterior cells, with the alula usually wanting, minute and rarely present and the base of wings thus narrow, with the first posterior cell open, the anal cell closed apically and provided with a short stalk, the axillary lobe elongate and narrowish, its margin appearing discontinuous with rest of hind margin of wings, due to an indentation at end of vein between anal and axillary cells, with the vein between discoidal and second posterior cells (combined second and third posterior cells) S-curved, with the squamae narrow; halteres with very long and slender stalks. *Abdomen* with the last sternite in ♀♀ either elongate and scoop-like and enclosing an elongate process or two parallel lamellae or shorter, emarginate apically and with the middle process projecting or there is merely a process at end of abdomen, narrowed towards apex and sometimes bifid (cf. textfigs. 309 *b*, 312, 318 *a*, and 320 *b*). *Legs* with a distinct, elongate-elliptical, demarcated callus or pad-like area on outer faces of front femora more or less in basal half in both sexes, with the surface of this area flat, microscopically sculptured or rugulose and, when

viewed from side, showing a very short silvery or whitish tomentum; hind femora, tibiae and tarsi elongate and strongly developed, the hind femora with or without a few spines below, the hind tibiae with 3 rows of stoutish spicules, the tibiae themselves more or less thickened apically; apical spurs on front and middle tibiae small and inconspicuous, long and strongly developed on hind ones; claws and pulvilli well developed, the middle pulvillus or empodium is represented by a spine-like process below. *Hypopygium* of ♂♂ (text-figs. 310, 311, 313, 314, 317, 319, 321–323, 325, and 326) is complicated and peculiar in that the last abdominal segment is structurally modified to such an extent that it is more intimately connected with the true hypopygial elements than in all the preceding genera. There appears no doubt that it thus plays a greater role in the copulatory act than homologous structures in other Bombyliids in this first division of this family. As in the case of the Palaearctic *Usia* and in the genus *Toxophora* the last abdominal segment, opposed to the hypopygium, is also produced on each side into a prong or process. The hypopygial structures of *Systropus* are also constantly reversed in position in that the usual basal part (Ba.Pt.) of the hypopygium is ventral in position and the usual last sternite, enclosing the aedeagal structures in most other Bombyliids, is dorsal in position and corresponding to a last tergite (L.T.). This latter segment, shown in all the figures, is usually somewhat sunk in or lower than the tergite before it and is alluded to as the last tergite. Apically on each side its apical angle is produced into an elongated process, prong, or spine (T.P.) which is straight, curved or even hook-like. The apical margin of this last tergite is usually emarginate and on each side between the prongs and attached by a membrane there is a subtriangular or triangular plate (T.T.). Towards the inner side of each terminal plate above there is an oval or elongate and sometimes very broad, black, indurated, callus-like area, the surface of which is shagreened, file-like or appearing faceted (*see* figures). These and similar plates present in all other Bombyliid-genera probably represent modified terminal abdominal segments. The last tergite in *Systropus* is attached to the ventrally situated basal part (Ba.Pt.) of hypopygium on each side laterally and towards the base as shown in the figures and also medially on the inside to the apical part of the hypopygial ramus (R.) of the aedeagal complex by a transverse, flattened, strap-like or band-like, chitinous band, extending from the base of one prong (T.P.) to the other and often produced towards the centre into an apically directed process or lobe (M.A.) on each side. The actual

attachment to the apical part of the ramus (R.) is by means of a tough membrane. The hypopygium itself consists of a single basal part (Ba.Pt.) more or less feebly divided into two parts by a slight medial depression. Apically each part ends in an apical joint (Ap.Jt.) which assumes a variety of shapes in the various species (cf. text-figures) and usually ends in a sharp or spine-like beak directed inwards. The aedeagus (Ae.) of the aedeagal complex, lodged in the hollow of the basal part, is usually shortish and more or less hidden by the rest of the armature, consisting of an aedeagal process (Ae.Pr.), corresponding to the ventral aedeagal process of some other Bombyliids, an accessory process (Ac.Pr.) and the ramus (R.). The aedeagal process is either very prominent, inflated or tumid apically, or more slender and bifid apically. The accessory process (Ac.Pr.) is either leaf-shaped and twisted or merely rod-like or lobe-like and is usually connected or joined on each side to the basally directed aedeagal struts (P.Str.). The aedeagus passes into the middle part which has the usual lateral strut (L.Str.) on each side and the medial basally directed basal strut (Ba.Str.). The aedeagus is also produced into a basally directed, flattened, strap-like or boomerang-shaped aedeagal strut (P.Str.) on each side in the hollow of the basal part and usually projecting basally a little beyond bases of basal part. The entire aedeagal structure is joined on to the basal part on each side by means of the ramus (R.), both together forming a jaw-shaped or ∩-shaped structure, the apical part of which may be broadened or produced into a lobe or spine on each side.

Representatives of this genus of which the life-histories are partly known are parasitic on the caterpillars of a peculiar family of nocturnal moths, the *Limacodidae*, which in South Africa are often beautifully coloured. The slug-like caterpillars of these moths are to be found feeding on various kinds of plants. Prior to pupation the caterpillars usually construct ovoid or oval, hard or horny cocoon-cases, which are often attached to the food plants. The only two South African species known to parasitise Limacodids have both been bred from cocoon-cases and only their pupal cases are thus known. In the last sternite of a ♀ of *Systropus macilentus* and of *snowi* structures (text-figs. 309 and 320, *a*) were found which without doubt represent the still unlaid eggs. The shape of these eggs is as shown in the figures in dorsal or ventral and side views; the narrower pole is constricted off into a rim-like edge; either the dorsal or ventral surface is sometimes slightly less chitinous and on the opposite side there is nearer the broader pole a less chitinous, translucent and more

membranous oval or slit-like pore or hole, which from a side view appears bubble-like. How parasitism in this genus is initiated is still a mystery. We do not know whether the egg is deposited on the caterpillar or whether a free triungulin-type of first instar attacks the caterpillars or finds its way into the cocoons. Judging from the type of egg figured, there is a probability that the egg is glued on to the caterpillar as in the case of Tachinid-flies and that the first instar, hatching inside this chitinous shell, finds its way into the caterpillar through the oval pore in the same way as the larvae of some *Tachinidae* do. At least one species of *Systropus* (*S. bicuspis* Bezz.), from Southern Nigeria, has, however, according to Dr. Neale, been bred from the cocoon of *Stenomutilla beroe*, a Mutillid-wasp.

The shape and structure of the known pupae, based on empty pupal cases, are as described and figured by Westwood (pp. 572–573, Trans. Ent. Soc. Lond., Pl. 10, figs. 6–9, 1876), by Engel (p. 85, Die Fliegen d. Pal. Reg. Lief. 67 (Bombyliidae), fig. 38, 1932), and text-fig. 315 in this paper. There are no cephalic spines, only a transverse sharp ridge above rudiments of antennae and the embedded spines on abdomen do not project outwards.

Key to the known South African species.

1. (16) Wings with only 2 submarginal cells present . . . . . 2.
2. (7) Antennal joint 2 much shorter, very much less than half, only about or a little more than $\frac{1}{3}$, as long as 3; proboscis on the whole shorter, 3–3½ mm. long; front and middle tibiae on the outer sides without any, or with only inconspicuous and feeble, silvery hairs, the hind femora shorter and with some spines below at about middle; pteropleuron without or with only very short silvery hairs posteriorly and with the silvery hairs on metasternal part shorter, sparser or at least distinctly less dense and the club of abdomen without or with scarcely any silvery pubescence in apical part; scutellar callosities broader, more quadrate, and more uniformly depressed; wings with the first posterior cell not distinctly, or scarcely, narrowed at apex . . 3.
3. (6) Wings on the whole darker, uniformly dark brownish, becoming even darker towards base and even slightly darker in ♀♀; propleural callosity, front coxae and outer sides of front and middle tibiae castaneous brown or reddish brown and not ivory yellowish and without even faint or feeble silvery pubescence; apices of hind femora and hind tibiae conspicuously darkened or blackened, the greater part of hind legs being pale reddish brown; hind part of metasternum black; hypopygium of ♂♂ (text-figs. 310 and 311) with the apical joints more rounded, ending in a well developed, spine-like beak, with the apical part of ramus not very broad and not ending in a lateral spine, etc. . . . . 4.
4. (5) Antennal joints, face, the sides of thorax broadly, base of thorax, apical spot on scutellum, the pteropleuron and metapleurae, base of tergite 1,

tergites 2–5 above and medially below and legs, including basal joints of tarsi, pale reddish brown; wings on the whole darker and even in ♂♂ more distinctly brownish; halteres paler brownish above; pubescence on thorax above, on pleurae, metasternum and tergite 1 more in form of fine silvery hairs; proboscis slightly longer, about 3½ mm. long; hypopygium of ♂ (text-figs. 310 and 311) . ♂ ♀ *macilentus* Wied. (p. 1001).

5. (4) Antennae, face and genae, greater part of thorax above, the entire scutellum, the greater part of pteropleuron and metapleurae, entire tergite 1, the dorsum of rest of tergites black, with the coxae, front and middle femora, apical parts of their tibiae and all the tarsi very dark, almost black; wings slightly less dark, the apical part at least less dark; halteres slightly darker above; pubescence, especially on posterior part of thorax, on scutellum, on mesopleuron, metapleurae, metasternum behind and on sides of tergite 1, more distinctly in form of broader, brilliantly shining, silvery scaling or scale-like hairs; proboscis only about 3 mm. long . . . . . ♂ *namaquensis* n. sp. (p. 1006).

6. (3) Wings, though dark, slightly paler and more smoky greyish or cinereous, only smoky brownish at base and along costal part, especially in ♀♀; propleural callosity, front coxae, a subapical spot on front femora below and outer faces of front and middle tibiae ivory yellowish to whitish, with faint, but distinct, silvery pubescence on these parts on tibiae; legs black, the hind ones entirely so; the pteropleuron, middle sternopleuron, entire metapleurae and hind part of metasternum pale reddish brown; hypopygium of ♂ (text-figs. 313 and 314) with the apical joints broad and flattened and the beak short and blunt, with the apical part of ramus broad and produced into a spine on each side, etc.
♂ ♀ *barnardi* n. sp. (p. 1006).

7. (2) Antennal joint 2 distinctly much longer, about half or much nearer to half as long as joint 3; proboscis also longer than 3½ mm.; front and middle tibiae on the outer sides with conspicuous brilliantly shining silvery pubescence and hind femora longer and without spines below; pteropleuron with distinctly longer, or with a tuft of distinctly longer, silvery hairs posteriorly and the silvery hairs on metasternal part on the whole also denser and club of abdomen with conspicuous silvery pubescence in apical part or at least with paler hairs; scutellar callosities narrower, their hind edges more turned down; wings with the first posterior cell distinctly more narrowed at apex . . . 8.

8. (9) Wings entirely glassy hyaline; humeral angle and across anterior spiracle and including prosternal callosity on each side, a large rounded spot on each side of thorax above bases of wings, the posterior angle of thorax on each side, the front coxae and to a certain extent outer sides of front tibia ivory whitish; antennae with joint 1 entirely black or dark, with the apical part of joint 3 (text-fig. 316) more distinctly and more sharply produced outwards; pubescence on metapleural and metasternal part slightly longer and denser, that towards apex of abdomen not conspicuously silvery; hypopygium of ♂ (text-fig. 317) with the black callus-area on terminal plates of last sternite (tergite) very narrow and linear . . . . . ♂ *munroi* n. sp. (p. 1010).

9. (8) Wings not entirely glassy or vitreous hyaline, either tinged smoky or

brownish or with at least costal part brownish; humeral angle, anterior spiracular part on each side, spot or macula on each side above wing-bases and posterior angles of thorax not ivory whitish, but usually reddish or ferruginous red; antennae with joint 1 not entirely dark, the basal part or basal half brownish or reddish brown, with the apical part of joint 3 even if acute not distinctly produced or prolonged; pubescence on metapleural and metasternal part on the whole shorter, less dense and less shaggy, that towards apex of abdomen conspicuously silvery; hypopygium of ♂♂ (text-figs. 319 and 321–323) with the callus-area on terminal plates distinctly broader . . . . . 10.

10. (11) Wings clearer, more hyaline, only the base, costal cell, marginal cell and extreme apex of first submarginal cell in ♂♂ and also first basal cell, basal half and upper part of first submarginal cell in ♀♀ very dark brownish, with the spot-like infuscation at base of second and third longitudinal veins darker and more conspicuous; frons, entire first antennal joints, face and genal regions and base of tergite 1 reddish or reddish brown; propleural callosity above front coxae only ivory yellowish in upper part and small sclerite above it black; outer parts of front and middle tibiae and tarsi scarcely, or only slightly, yellowish; antennal joint 2 on the whole shorter, more often scarcely half as long as 3; eyes above subcontiguous for only a short distance in both sexes; scutellar callosities very dark blackish brown or black; thorax above slightly more coarsely rugulose and general pubescence on body distinctly denser, that on antennal joint 1 above entirely silvery whitish; hypopygium of ♂ (text-fig. 319) with the apical joints more lobe-like, not produced into a long spine-like beak, with the apical part of ramus scoop-like, the accessory process broadly lobe-like, the apical prongs of last tergite long, slender and curved and the black callus-areas on terminal plates short . . . . ♂ ♀ *crudelis* Wstwd. (p. 1012).

11. (10) Wings distinctly tinged smoky, cinereous or even blackish brown, even if only slightly, the base and costal regions being darker than the rest, the dark, however, not so well marked off and the spot-like infuscation at base of second and third longitudinal veins less conspicuous; first antennal joints usually darkened in apical part or half or even entirely blackish, the apical part of frons, face and genal regions yellow or predominantly yellow, the entire first tergite black; propleural callosity and triangular sclerite above it entirely pale ivory yellowish; outer parts of front and middle tibiae and tarsi usually much paler, sometimes conspicuously ivory yellowish; antennal joint 2 longer, at least about half as long as 3; eyes above in actual contact for a much longer distance in both sexes; scutellar callosities very pale yellowish to almost white; thorax above finer rugulose and general pubescence sparser and less conspicuous, and that on antennal joint 1 above entirely dark or with only a few intermixed whitish hairs; hypopygium of ♂♂ (text-figs. 321–323) with the apical joints provided with a spine-like or hook-like beak, with the apical part of ramus produced apically on each side into a lobe or process, the accessory process more prong- or spine-like, the apical prongs of last tergite much shorter and less slender and the black callus-area on terminal plates much broader and more prominent . 12.

12. (15) Wings in relation to body slightly longer, distinctly less darkly infuscated, cinereous or less darkly smoky, only the costal part slightly darker than rest; antennal joint 1 predominantly reddish or pale reddish brown, only the apical part or half darkened; sides of thorax above continuously reddish from broad humeral spot to post-alar calli and at least the posterior part of pteropleuron is reddish; pubescence on thorax and scutellum above entirely silvery whitish, no distinct dark hairs being obvious; hypopygium of ♂♂ (text-figs. 321 and 322) . 13.

13. (14) Pleural parts predominantly black, the greater part of metapleurae also black; front coxae tending to be darker in front; tergites 2–5 on the whole much darker and more blackish above, and tergite 5 with the dorsum and apical half of sides very dark or blackish; pubescence on body, especially on metasternal part behind, apparently shorter and less dense, and that on first antennal joints entirely black; slightly larger form, 17–18 mm. long, with a wing-length of about 11–11½ mm. and the proboscis about 5 mm. long; hypopygium of ♂ (text-fig. 321) with the apical process of last tergite on each side shorter and more lobate, its apical part more dilated, the aedeagal process longer and more slender, the accessory process shorter and more reduced, the apical lobes of apical part of ramus nearer together and shorter, the black callus-area on terminal plates broader, etc. . . ♂ ♀ *snowi* Adams (p. 1015).

14. (13) Pleural parts with the entire metapleural region, greater part of pteropleuron and sutural part between meso- and metapleurae reddish; front coxae paler and tending to be pale ivory yellowish in front to a greater extent; tergites 2–5 on the whole less dark and more brownish above, and tergite 5 entirely or predominantly pale reddish yellow; pubescence on body, especially on metasternal part behind, slightly denser and longer and that on first antennal joints with much intermixed silvery hairs; smaller form, about 13–14 mm. long, with a wing-length of about 8–8½ mm. and the proboscis about 3–3½ mm. long; hypopygium of ♂ (text-fig. 322) with the apical process of last tergite longer and more spine-like, more curved, the aedeagal process broader basally, the acessory process longer and joining on to basally directed aedeagal struts, the apical lobes of apical part of ramus more widely separated and longer, the black callus-area narrower, etc.
♂ *zuluënsis* n. sp. (p. 1018).

15. (12) Wings apparently shorter in relation to body, distinctly more darkly infuscated, dark smoky brown, even darker in basal and costal parts; antennal joint 1 much darker, dark brownish, only extreme base paler; legs on the whole distinctly darker, darker brownish, the hind femora dark blackish brown above and the other femora also much darkened above; sides of thorax above, on each side, not continuously reddish, the red only present as a large humeral spot and from above wings to post-allar calli, the pteropleuron is entirely black and only the lower part of metapleurae is reddish; pubescence on thorax and scutellum above also silvery whitish, but with distinctly visible short blackish hairs medially in front and in a longitudinal abbreviated band on each side near middle and medially on hind border and also discally on scutellum; hypopygium of ♂ (text-fig. 323) . ♂ *fumosus* n. sp. (p. 1019).

16. (1) Wings with 3 submarginal cells constantly present . . . . 17.
17. (20) Wings darkly tinged smoky brownish, even darker in costal and basal part, usually more distinctly so in ♀♀, with the veins much darker, dark brownish to blackish brown; eyes in both sexes contiguous or in actual contact for a long distance; antennal joints 1 and 2 much darker, the first dark brownish, the second blackish and longer; proboscis entirely or predominantly black; scutellum entirely or predominantly black and scutellar callosities yellow; hind legs with the tibiae darkened or blackened towards apex and hind tarsi entirely very dark or black, with the callus on front femora larger, nearly half as long as femora; halteres with the knobs very dark or blackish above; club of abdomen on the whole shorter and plumper; superficially resembling Sphegids, less than 20 mm. long, with a wing-length of considerably less than 18 mm. . 18.
18. (19) Wings with a more marked off darker, more dark brownish infuscation in first basal cell, base of second basal cell, basal half or greater part of marginal cell and enclosed submarginal cell, more extensive in ♀♀, with the cut-off third submarginal cell (text-fig. 324) narrowed apically as a result of a hindward bend or sinuosity of vein between it and normal second submarginal cell; antennal joint 2 much shorter, distinctly or much less than half as long as 3; sides of thorax above and across base, propleural callosity, pteropleuron and entire metapleural part as well as base of tergite 1 reddish, tergites 2–5 scarcely, or not, darkened above; legs as a whole paler reddish, with the front coxae dark, the front and middle tibiae not ivory whitish or yellowish on the outer sides and hind femora with some spines below at about middle; thorax above and scutellum and on mesopleuron with coarser sculpture and with the short, blackish brown hairs on disc of thorax and scutellum distinctly more obvious; slightly smaller form, about 12–15 mm. long and a wing-length of about 7–9 mm.; hypopygium of ♂ (text-fig. 325) with the apical joints shorter and with a distinct broadish spine-like beak, the broadened apical part of ramus produced into an outwardly directed spine on each side, the aedeagal process merely knob-like apically, the chitinous strap-like band inside last tergite produced into 2 long spines, etc. etc.

♂ ♀ *sanguineus* Bezz. (p. 1021).

(? In here probably also *clavatus* Karsch.)

19. (18) Wings more uniformly tinged darkly, only a narrower costal part slightly darker, with the first submarginal cell much broadened apically, the vein separating submarginal cells not markedly sinuous or bent hindwards at middle; antennal joint 2 much longer, at least half as long as 3 in ♂♂; sides of thorax not reddened all round, a transverse humeral spot continuous with propleural callosity and a transverse stripe on each side in front of wings yellow, the greater part of pleural regions, excepting only the reddish sutural part between meso- and metapleurae, black, with tergite 1 above entirely black, and tergites 2–5 above more darkened and even blackish above especially in ♂♂; legs slightly darker, the femora more blackened or darker brownish-scaled above, with the front coxae and outer faces of front and middle tibiae and tarsi ivory yellowish and silvery-haired, and hind femora without any spines below; thorax above, scutellum and mesopleuron with distinctly finer sculpture and

with the 2 longitudinal bands of darkish hairs very fine and scarcely visible; slightly larger forms, about 15½–18 mm. long and with a wing-length of about 10–11 mm.; hypopygium of ♂ (text-fig. 326) with the apical joints distinctly longer, having 2 short spines on inner side, with the broadened apical part of ramus arcuately rounded in the middle and with a blunt angular prominence laterally, with the aedeagal process more inflated apically and appearing triangular from side, with the strap-like chitinous band inside last tergite broader and only slightly arcuately produced on each side medially, etc. etc.

♂ ♀ *leptogaster* Lw. (p. 1024).

(? In here probably also *clavatus* Karsch.)

20. (17) Wings predominantly tinged yellowish, the costal and basal parts broadly yellowish, the posterior clearer part more greyish, being slightly more mauvish at apex, with the veins predominantly yellowish; eyes subcontiguous or very narrowly separated in both sexes; antennal joints 1 and 2 very pale yellowish red and joint 2 much shorter; proboscis almost entirely reddish below and basally above; scutellum predominantly reddish, the scutellar callosities dark velvety brown; hind legs predominantly yellowish red, even basal half of hind tarsi reddish, only apical parts of tarsi and bases of femora dark and with the callus-area on front femora much shorter, narrower and not half as long as the femora; halteres with the knobs paler and more brownish yellow above; club of abdomen more elongate; body superficially resembling *Vespidae* (*Belonogaster*), 20–22 mm. long, with a wing-length of about 18½ mm. . . . . ♂ ♀ *marshalli* Bezz. (p. 1026).

S. macilentus Wied.

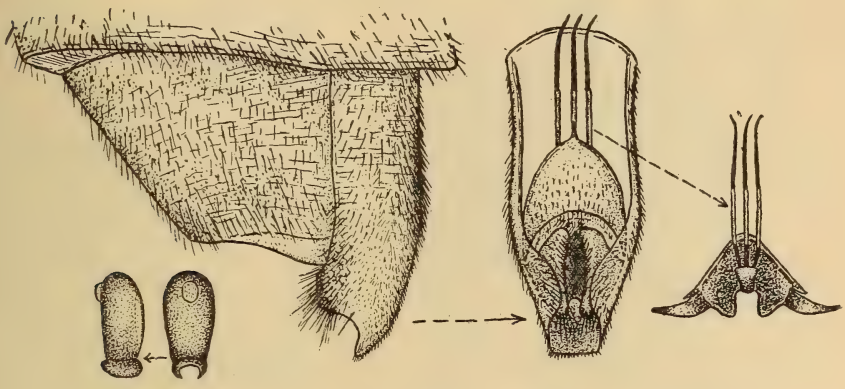
(P. 360, Aussereurop. Zweifl. Ins., i, Tab. V, fig. 6, 1828; as *macilentus* Wied. by Macquart, p. 116, Dipt. Exot., ii, Pl. 12, fig. 4, 1840.)

Apparently some confusion exists about the identity of this species and the original specimens of Wiedemann. Subsequent authors, such as Macquart, Schiner and Karsch, have been unable to determine *macilentus* correctly. The fact that some species of *Systropus* have 3 submarginal cells and others only 2 has contributed to the existing confusion. The superficial similarity of the different species and the possibility that Wiedemann may have described *macilentus* from specimens belonging to more than one species is also probable. The problem seems to centre round the presence or absence of 3 submarginal cells in *macilentus* and the specimen or specimens designated as types of *macilentus*. Bezzi in 1924 (p. 116, The Bombyliidae of the Ethiopian Region) drew attention to the fact that the Berlin material, assumed by Schiner and Karsch to be typical, may not have been the same species as that in Westermann's collection from which the

drawing of Wiedemann was most likely made. According to both Schiner (p. 134, Nov. Reis. Zool., Theil ii, Bd. i, 1868) and Karsch (p. 654, Zeit. Ges. Natur., liii, 1880), who based their conclusions on the Berlin material, *macilentus* has 3 submarginal cells. According to Wiedemann's figures on Table V, fig. 6 *a* and *d* (loc. cit.) and Macquart's figure in Pl. 12, fig. 4 (loc. cit.), the wings of *macilentus* certainly show only 2 submarginal cells. In view of the fact that the type cannot be satisfactorily located and that both Wiedemann's and Macquart's descriptions agree very closely with their figures and with certain specimens from the Little Karoo and the Cape Peninsula in the Transvaal Museum collections, these latter specimens may be provisionally regarded as representing the typical *macilentus* of Wiedemann. Moreover, from the figures and descriptions of these authors it is also evident that *macilentus* s. str., like the 5 ♂♂ and 2 ♀♀ before me, cannot be confused with any other species in the *Systropus*-material at my disposal. These specimens show certain distinct specific characters which are also portrayed and described by Wiedemann and Macquart. A supplementary redescription of the species is as follows:—

Body with antennal joints 2 and 3, greater part of proboscis, disc of thorax above, greater part of scutellum, mesopleuron, neck region, sternopleuron, metasternum behind, more than apical half of tergite 1, a line on each side below on tergites 2–5, black or blackish, with segments 6–8 or 9 (club) more dark castaneous brownish, appearing dark on account of dark pubescence; ocellar tubercle, antennal joint 1, face and upper parts of genal parts, palps and to a certain extent base of proboscis below, the broadish sides of thorax, from shoulders to base and even across base, the propleural callosity above front coxae and across anterior spiracular part to shoulders, the pteropleuron, mesosternal part, metapleural part and sides of metasternum to tergite 1, sometimes the posterior part of scutellum, the base transversely across tergite 1 and entire tergites 2–5 pale reddish brown to reddish; legs predominantly pale reddish brown, the coxae more castaneous brown, margins of elliptical callus on outer side of front femora also dark castaneous, with the clavate apical parts of hind femora and tibiae and last 4 joints of all the tarsi blackish, with 2 or 3 dark spines on hind femora below at about the middle and with the hind femora relatively short; pubescence not very dense or long, not so long and conspicuous as in *crudelis*-group, predominantly silvery whitish as in other species, that on first antennal joints black, the erect hairs medially on face dark brownish, those on occipital

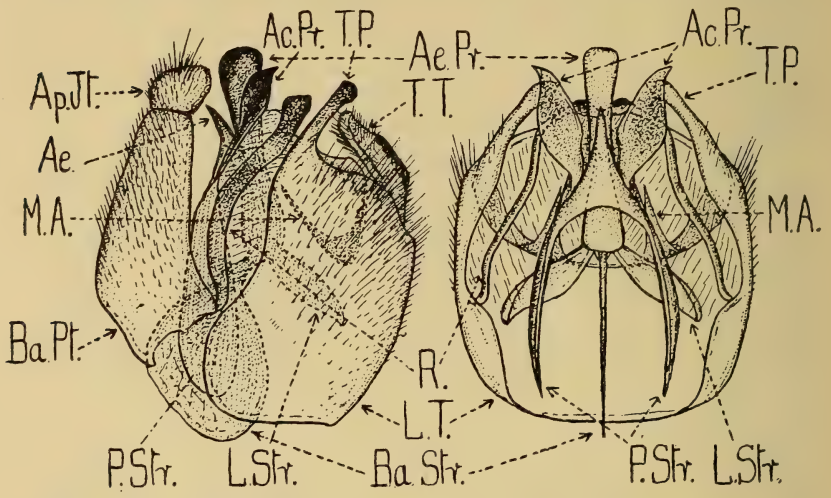
margin behind tubercle brownish, those on disc of thorax distinctly brownish, the brownish ones being more or less arranged in two longitudinal bands, with the pubescence on abdomen predominantly dark brownish to blackish, that on tergite 1 silvery whitish, with the scaling on legs predominantly dark on femora, paler on tibiae, but without a conspicuous silvery pubescence on outer sides of front and middle tibiae; wings more or less uniformly dark brownish, showing a slight reddish brown sheen in certain lights, becoming slightly



Text-fig. 309.—(*a*) Egg of ♀ of *Systropus macilentus* Wied. (*b*) Side view and dorsal view of last sternite of ♀ of *S. macilentus*, the dorsal view with the tergite removed showing the actual last tergite and genital lamella in position. (*c*) The genital plate below last enclosed tergite and lamellae.

darker towards base and even slightly more so in ♀, with the veins brownish, darker along costal and first longitudinal veins, with a faint indication of also being darker at base of second longitudinal vein, on discal cross vein and at base of vein between submarginal cells, with only 2 submarginal cells constantly present, the first posterior cell not perceptibly narrowed apically and with the discal cross vein a very little beyond middle of discoidal cell, the squamae brownish; halteres with the knobs very dark castaneous brown to blackish brown above, very pale yellowish below. *Head* with the eyes in ♂♂ more or less in contact for a comparatively long distance, about 3½–4 times as long as tubercle, either in actual contact throughout this length or subcontiguous for a short distance before the actual contact or even showing a very narrow line for the greater part of this length, touching above for about 1½ times as long as tubercle in ♀, then gradually diverging apically; frons in ♀ thus longer; antennae with the first joints about, or only very little more than, 3 times as

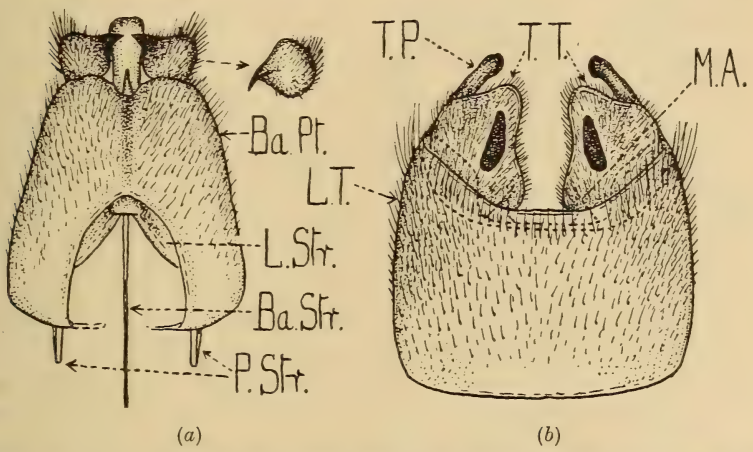
long as 2, with 3 rather pointed apically and quite 3 times as long as 2; proboscis about 3–3¼ mm. long; palps slender and visibly projecting from buccal cavity. Genital parts of ♀ (as shown in text-fig. 309, *b* and *c*, with the penultimate visible tergite shown in left-hand figure and in right-hand one with this tergite removed, showing the real last tergite and lamellae enclosed in last sternite and with (*c*) the peculiarly



TEXT-FIG. 310.—(*a*) Side view of hypopygium of ♂ *Systropus macilentus* Wied. (*b*) Ventral view of hypopygial structures (basal part of hypopygium removed) of ♂ of same species.

shaped chitinous plate under the true last tergite) with the last sternite slightly produced; actual last tergite ending in a triangular lamella on each side, each of which is, however, fused to the other ventrally and with a peculiarly shaped chitinous plate (*c*) below last enclosed tergite, incised apically, with a lateral process on each side which is attached to sides of last sternite and with a medial, backwardly directed process ending in three slender, jointed, gristle-like, rod-like processes or rods (*see* figures). The egg (text-fig. 309, *a*) is hard, brownish and chitinous, as described under the genus and about ½ mm. long. *Hypopygium* of ♂ (text-figs. 310 and 311, showing side view of both the hypopygium and last tergite in fig. 310, *a*, a ventral view of last tergite containing the hypopygial structures, but with the basal part of hypopygium (Ba.Pt.) removed, a ventral view of basal part (Ba.Pt.) and a dorsal view of last tergite in fig. 311, *a* and *b*) with the apical joints (Ap.Jt. in fig. 310, *a* and fig. 311, *a*) more or less

subglobular, but flattened towards beak above (apical view shown to right of text-fig. 311, *a*); aedeagus (Ae.) with the aedeagal process (Ae.Pr.) knob-like or inflated apically; accessory processes (Ac.Pr.) on each side of aedeagal process leaf-shaped and twisted and joined on to the basally directed aedeagal strut (P.Str.) on each side; ramus (R.) strap-like and not much broadened apically, only slightly knob-like on each side apically; lateral and basal struts (L.Str. and Ba.Str.) as shown in figures; last tergite (L.T. in fig. 310, *a* and *b* and



Text-fig. 311.—(*a*) Basal part, apical joints, and visible parts of hypopygium of ♂ *Systropus macilentus* Wied. (*b*) Last tergite and terminal lappets (the rest of armature removed).

fig. 311, *b*) with the apical prong (T.P.) slightly broadened and compressed apically, with the terminal plate (T.T.) on each side as shown in figures and its black-callus area almost bean-shaped and shortish, with the chitinous band inside the last tergite produced into a sharply pointed process on each side near middle (M.A.). These latter processes are attached to apical part of ramus by membranes.

Length of body: about 14–17 mm.

Length of wing: about 8½–10 mm.

Locality.—Western Cape Province: Muizenberg (Munro, Nov. 1931). Little Karoo; Oudtshoorn (Brauns, 5/9/09).

From all other species, with 2 submarginal cells, this species differs in the markedly shorter hind legs, relatively shorter hind femora, the characteristically darkened hind femora and tibiae and the very darkly infuscated wings.

1 ♂ *S. namaquensis* n. sp.

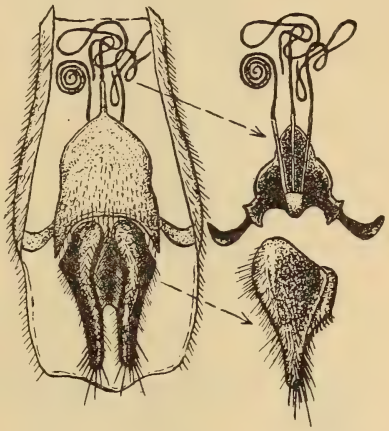
A single ♂-specimen, in the South African Museum, with the hinder part of the abdomen missing, is so close to *macilentus* that it may almost be considered as a variety of the latter. Certain distinct differences, however, seem to be of specific value. Compared with *macilentus*, this ♂ agrees in having the same shortish hind legs, which are also pale reddish brown and with the apices of the femora and tibiae black, in having darkly-tinged wings, no ivory yellowish on outer sides of front and middle tibiae and no silvery pubescence on these tibiae. It differs from *macilentus* in having the first antennal joints, frons, face and genae black and not reddish brown, in having the greater part of thorax above black, the red being represented only as a much smaller spot on humeral parts, connected with a large pre-alar spot by a scarcely perceptible narrow red line, entirely absent across base, in having the pteropleuron and greater part of metapleurae black and not red, with tergite 1 entirely black and tergite 2 blackish above and below, in having darker and more dark castaneous brown front and middle legs, the entire tarsi being almost black; pubescence on thorax distinctly more glittering or brilliantly shining silvery and distinctly more scale-like, the fine hairs of *macilentus* being replaced by flattened scales, especially on metasternum and even on sides of tergite 1; wings on the whole slightly less darkly tinged than in *macilentus*. *Head* with the eyes above contiguous for a distance also about 3 times as long as ocellar tubercle, with antennal joint 1 a little more than 4 times as long as 2, with 3 a little more than 3 times as long as 2 and also pointed, with the proboscis only about 3 mm. long. *Legs* with 2 spines below on hind femora.

Locality.—Namaqualand: Giftsberg (Van Rhynsdorp) (Sept. 1911).

2 ♂♂ 1 ♀ *S. barnardi* n. sp.

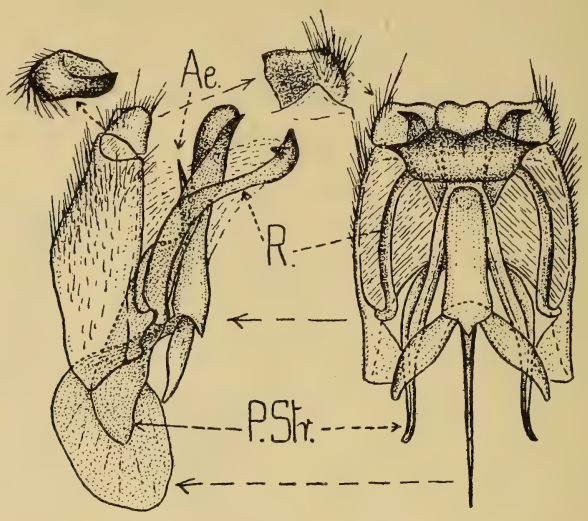
Body with the antennae, proboscis, disc of thorax above, scutellum, anterior spiracular part, mesopleuron, sternopleuron, greater part of tergite 1, a broad line on each side below on tergites 2–5 and the club of abdomen black; the sides of upper parts of face and genal region, the sides of thorax above, broadened at shoulders and in front of wings, the entire meso- and metapleural regions, the pteropleuron, entire metasternum, a large spot basally on each side of tergite 1 and tergites 2–5 pale reddish brown, with the face medially dark blackish brown; lower part of buccal rims, base of antennae, scutellar callosities,

propleural callosities, greater part of front coxae, a spot below near apex on front femora and narrow outer faces of front and middle tibiae conspicuously ivory yellowish; legs, including middle and hind coxae, black or blackish; pubescence black or blackish on antennae, on face medially, with the short hairs along hind margins of eyes in occipital region also black, the short ones more or less in longitudinal bands on disc of thorax, that on scutellum, on mesopleuron, on dorsum and also below on tergites 2–5 and the more conspicuous hairs on club of abdomen black, those on thorax being slightly more blackish brown, with the rest of pubescence on thorax silvery whitish, that on tergite 1 also silvery but dark discally, with the fine pubescence on sides of tergites 2–5 silvery whitish, that on legs predominantly dark or blackish, that on coxae, on outer faces of front and middle tibiae and sparsely towards base of hind femora silvery; wings tinged smoky or cinereous, becoming darker towards base and in costal part, more especially in ♀, with only 2 submarginal cells present, with the veins very dark blackish brown, almost black, the squamae darkish, but fringed with whitish hairs; halteres with the stalks very dark blackish brown, the knobs yellowish brown to brown above and pale yellowish below. *Head* with the eyes above in ♂♂ in actual contact for a long distance, about 4 times as long as ocellar tubercle, separated in ♀ by a narrow space in front of tubercle, about as broad as narrow front part of tubercle, then with the inner margins gradually diverging, the frons thus longer than in ♂ and clothed with silvery tomentum apically and velvety black basally; antennae with joint 1 about, or a little less than, 4 times as long as 2, with 2 a little less than ⅓ as long as 3; proboscis about 3–3½ mm. long; palps rather shortish, dark. *Abdomen* with segments 2–5 forming the stalk. *Legs* with about 2 or 3 spines on hind femora below just before middle; callus-like area on outer basal side of front femora more coarsely rugulose than in other species, the tomentum on it whitish when

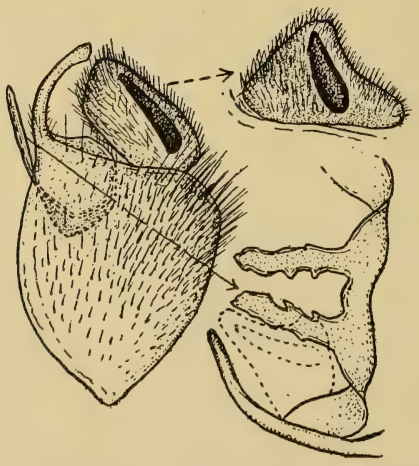


Text-fig. 312.—Dorsal view of last sternite of ♀ of *Systropus barnardi* n. sp. showing enclosed lamellae, last tergite and other structures.

viewed from side and the surface with at least 3 transverse, groove-like depressions. Genital part of ♀ with the last sternite (text-fig. 312,



TEXT-FIG. 313.—Side view of basal part and aedeagal armature and a view of same (the last tergite being removed) of ♂ of *Systropus barnardi* n. sp.



TEXT-FIG. 314.—Side view of last (dorsal) tergite, a dorsal view of terminal plate, and chitinous band inside last tergite of ♂ *Systropus barnardi* n. sp.

showing a dorsal or view inside last sternite to expose the internal structures and also the lamellae from side in lower right-hand figure) scoop-like, not much produced medially apically; the lamellae longer

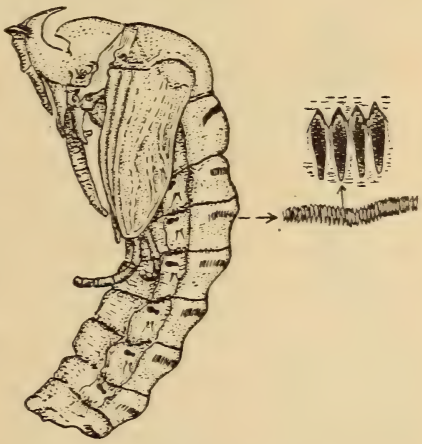
than in *macilentus*; last small tergite shaped as in figure and also ending basally in a spine-like process; plate below last tergite (shown to the right in upper figure) slightly differently shaped from that of *macilentus*, also lying on floor of last sternite and with the 3 processes from recurved medial apical process very much longer and coiled spirally as shown in figure. *Hypopygium* of ♂ (text-figs. 313 and 314, showing side view of basal part and aedeagal armature, a view of same with the last tergite removed, a side view of last tergite, a view inside last tergite to show the chitinous band and its prongs, etc.) with the apical joints not ending in a very distinct spine (shown in apical view to left of text-fig. 313, from side and from below in middle figure); aedeagal process somewhat inflated apically; ramus (R.) very broad apically and ending in a spine on each side; accessory process on each side of aedeagal process leaf-shaped but narrower than in *macilentus*; black callus on terminal plates longer than in *macilentus*; the prong on each side of last tergite longer and more curved inwards and upwards and the processes of chitinous band inside last tergite (to right below in text-fig. 314) with subsidiary processes.

Types in the South African Museum.

Length of body: about 13–17 mm.

Length of wing: about 7½–9½ mm.

Locality.—S.W. Cape Province: Hottentot's Holland Mts. (4000 ft.); Caledon (Barnard, 1919).



Text-fig. 315.—Empty pupal case of *Systropus barnardi* n. sp.

This species is easily recognisable by its dark or black legs and entirely red metasternum. The holotype- and allotype- specimens were hatched in the Museum from Limacodid-larvae, probably belonging to some species of *Parathosea*. Only the pupal skin of the pupa is known. The pupal case (text-fig. 315 of ♀) has the cephalic transverse ridge very much reduced and not prominently projecting as in the pupa of *crudelis* (cf. Westwood's figures 6–8, Pl. 10, Trans. Ent. Soc. Lond., 1876); abdominal segments 2–8 each with a transverse row of flattened embedded spines across middle and not reaching sides

of the tergites, with these spines longer and more strongly developed and less numerous than in *crudelis*, their basal ends slightly broadened, almost all the spines of equal length, only those along midline slightly shorter; bristle-like processes on each side of 2–7 inconspicuous, short and very much shorter than in *crudelis*, which latter species also has a distinct process on sides of tergite 1. The ♂ pupal case differs from that of ♀ in having a tumid or tubercular process on each side terminally, thus forming a bifid process.

Length of pupal case: about 11 mm.

1 ♂ *S. munroi* n. sp.

Body for the greater part black; front part of frons, antennal prominence, front part of face, genae, a broadish transverse macula, occupying humeral angles, anterior spiracular area and propleural callosity on each side, a large rounded spot on each side of thorax in front and just above bases of wings, the posterior angles of thorax, the scutellar callosities, the squamae, the entire front coxae and outer faces of front tibiae conspicuously ivory yellowish or whitish; segments 2–5 of abdomen ochreous yellow, but with a dark line on each side below and with dark scaling on dorsum, with the dorsal and apical part of tergite 9 also yellowish; femora with the front ones very pale and more yellowish, even becoming yellowish white towards apex below, the callus on outer side more reddish yellow, with the middle and hind femora more sienna brownish, dark to blackish above, the hind ones dark apically and without spines, with the middle tibiae dark but more yellowish on outer surfaces, the hind ones predominantly dark or blackish, with the tarsi blackish, the basal parts of front and middle ones more yellowish to brownish, especially on outer surfaces; pubescence predominantly gleaming silvery whitish, that on first antennal joints above also silvery and markedly conspicuous and dense, that on thorax, pteropleuron, metapleurae, metasternum and sides of tergite 1 dense and longish, appearing shaggy, that on sides basally of tergite 1 blackish, that on club of abdomen short, sparser and more in form of scaling, black, but with a sericeous sheen in certain lights, that towards apex paler and more yellowish but not



TEXT-FIG. 316.—Second and third left antennal joints of ♂ of *Systropus munroi* n. sp.

conspicuously silvery as in *crudelis*, that on outer sides of front tibiae silvery. *Thorax* with the sculpture not very much coarser than in *crudelis*, less rugulose and more in form of puncturation than in latter but apparently less coarse than in *sanguineus* or *macilentus*; wings clear vitreous or glassy hyaline even in costal cell, with the veins blackish brown and an indication of a faint spot at fork of second and third longitudinal veins, with only 2 submarginal cells present, the



Text-fig. 317.—Parts of hypopygium of ♂ of *Systropus munroi* n. sp.

vein separating them showing an indication of a stump-like prominence (in this unique specimen), with the alula much reduced as in other species; halteres brownish yellow, the knobs very pale ivory yellowish above and below and more extensively so than in *crudelis*. *Head* with the eyes separated above by a narrow line about 2 times as long as ocellar tubercle; antennae with joint 1 quite 5 times as long as 2, with 2 thus relatively short and distinctly less than half as long as 3, with 3 (text-fig. 316) produced or prolonged apically and outwardly into an acute point more distinct and conspicuous than in other species; proboscis about 4 mm. long. *Abdomen* with segments 2–5 constituting the stalk. *Hypopygium* of ♂ (text-fig. 317, showing side view of hypopygium and last dorsal tergite in position, to the right above a dorsal view of terminal plate and below it shape of chitinous band inside last tergite and to left below a ventral (dorsal) view of apical part of rami and accessory processes) with the apical joints differently shaped from those of *crudelis* (cf. text-figures); ramus shaped as shown in lower left-hand figure; last tergite with a sharp prong on each side, with the callus-area on terminal plates

narrow and linear and with the chitinous band inside last tergite (*see* lower right-hand figure) broad and scoop-like.

Type in the Transvaal Museum.

Length of body: about 14 mm.

Length of wing: about 9 mm.

Locality.—Transvaal: Pretoria (Munro, 9/1/23).

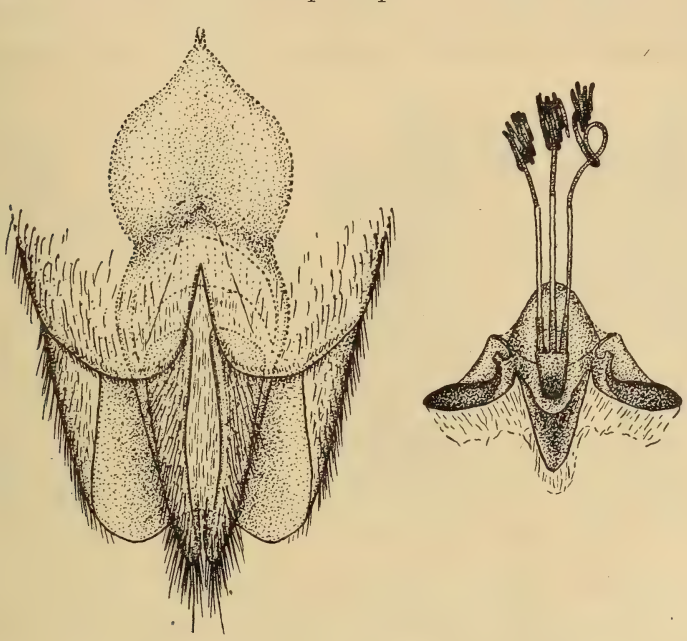
This species cannot be confused with any other South African species having 2 submarginal cells. It may be distinguished from all of them by the entirely clear glassy hyaline wings and ivory whitish or yellowish markings on thorax and also by the relatively dense and longish silvery whitish pubescence on thorax, metapleurae, metasternum and sides of tergite 1. Superficially it resembles *leptogaster*, but may at once be distinguished by the clear wings which have only 2 submarginal cells.

S. crudelis Wstwd.

(P. 574, Trans. Ent. Soc. Lond., Pl. 10, figs. 1–12, 1876; Bezzi, p. 120, The Bombyliidae of the Ethiopian Region, 1924.)

This species appears to be fairly common and widely distributed in Southern Africa. It is easily recognisable by its greyish hyaline wings, which in ♂♂ have only the extreme base, costal cell, marginal cell and extreme apex of first submarginal cell infuscated brownish, but in ♀♀ are more broadly brownish, the brown also occupying basal half of first submarginal cell, the first basal cell, the upper half of apical half of first submarginal cell and to a certain extent even the second basal cell, and also by the slightly darker and more conspicuous brownish spot at junction of second and third longitudinal veins; pubescence on body relatively longer and denser than in other species, that towards posterior part of pteropleuron longish and tuft-like, with the pubescence predominantly silvery whitish, that on abdominal segments 7–8 or 9 (on club) also silvery whitish like that on stalk, dark ones being present towards apical half of segment 5 and on entire 6 of club, with silvery hairs above on first antennal joints and even basally on second ones, yellowish hairs on face, no distinct dark ones on occiput or disc of thorax and scutellum, with brilliantly glittering silvery pubescence especially on outer faces of front and middle tibiae and sparser silvery, scale-like pubescence on upper faces of hind femora, which are also entirely without spines below; pleural parts predominantly black, a large humeral spot and

another in front of wings on each side of thorax above, the base of tergite 1 and tergites 2–4 and base of 5 reddish brown like face, first antennal joints and legs, with the dorsal part of stalk tending to be dark and with a distinct blackish line on each side below on segments 2–4 and with the apical parts of tarsi dark brownish;

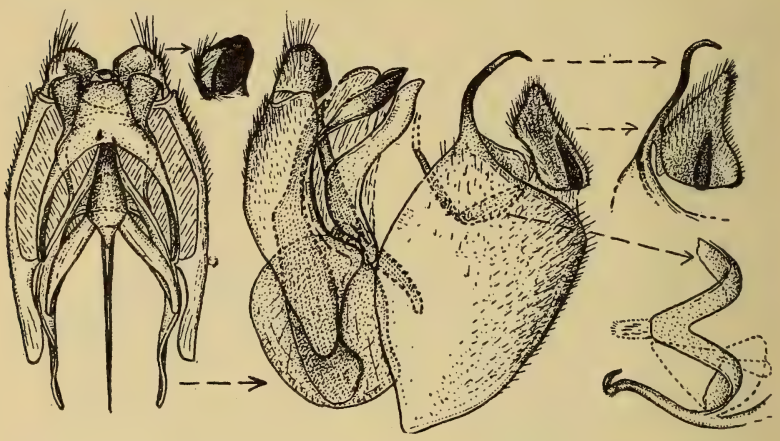


(*a*) (*b*)

Text-fig. 318.—(*a*) Dorsal view of apical part of abdomen of ♀ *Systropus crudelis* Wstwd. showing last sternite and genital lamellae, and the last hidden tergite in position. (*b*) Genital plate below last enclosed tergite.

scutellar callosities and only upper parts of propleural callosities dark blackish brown. *Head* with the eyes above very narrowly separated in ♀♀ by a space as broad as front ocellus, still narrower in ♂♂ but still not in actual contact; frons slightly longer in ♀♀; antennae with joint 1 about 3½, or a little more, times as long as 2 in ♂♂ and sometimes slightly shorter in ♀♀, with joint 2 a little less than half as long as 3 in ♂♂ and in ♀♀ apparently shorter, sometimes nearer a third the length of 3, with 3 somewhat bluntly rounded apically. Genital segment of ♀ (text-fig. 318 (*a*), dorsal view of apical part of abdomen showing the last sternite, with the genital lamellae in position and also in dotted outline the position and shape of the last enclosed tergite which is connected with the lamellae, and (*b*) the genital

plate below last enclosed tergite) with the last sternite emarginate apically, with the genital lamella appearing as 2 lobes from above but boat-like continuous ventrally; last enclosed tergite ending basally in an upwardly directed spine-like process; genital plate (*b*) also ending basally in 3 slender coiled processes as in *barnardi*, its ventral scoop-like plate and dorsal plate separated apically. *Hypopygium* of ♂ (text-fig. 319, showing side view of hypopygium



Text-fig. 319.—Hypopygial structures of ♂ of *Systropus crudelis* Westwd.

and last dorsal tergite in position in middle, to the left a view from above hypopygium with the last tergite removed and views of terminal plate and below on right the shape of chitinous band inside last tergite) with the apical joints (also shown in apical view to right of left-hand figure) somewhat hollowed out when viewed from abdomen below and not ending in a distinct beak; aedeagus short and hidden by the inflated aedeagal process, which is membranous on sides, only the apical part above being distinctly chitinous; accessory processes prominent and lobate; ramus scoop-like apically; basally directed aedeagal struts well developed; basal strut very broad and shaped as shown in figure; last tergite with the prong on each side long and slender and curved or twisted as shown in figures, with the callus-area on terminal plates short and narrowish, not extending beyond middle of plates, the plates themselves with somewhat acute apical angles, with the chitinous band inside last tergite produced medially as shown in lower right-hand figure.

Locality.—Natal, N.W. Cape Province, Transvaal and Bechuanaland. (Natal, Transvaal and South African Museums.)

The pupal stage of this species has been figured by Westwood (loc. cit., Pl. 10, 6–8) and by Engel (p. 85, Die Fliegen. d. Pal. Reg. (Bombyliidae), Lief. 67, fig. 38, 19–32). One specimen in the collection from Natal is labelled as having been bred from the cocoons of the Limacodid-moth, *Coenobasis amoena* Feld., a very beautifully coloured South African species, the larvae of which feed on species of Acacia. Mr. Bryant of Prieska has also sent several similar empty cocoons of this moth, attached to twigs of Acacia. From an unhatched cocoon in this batch a ♀ of *S. crudelis* hatched in the Museum. Mr. Bryant in a letter also states that the caterpillars of the Limacodid-host practically denude the branches and twigs of the Acacia of their leaves.

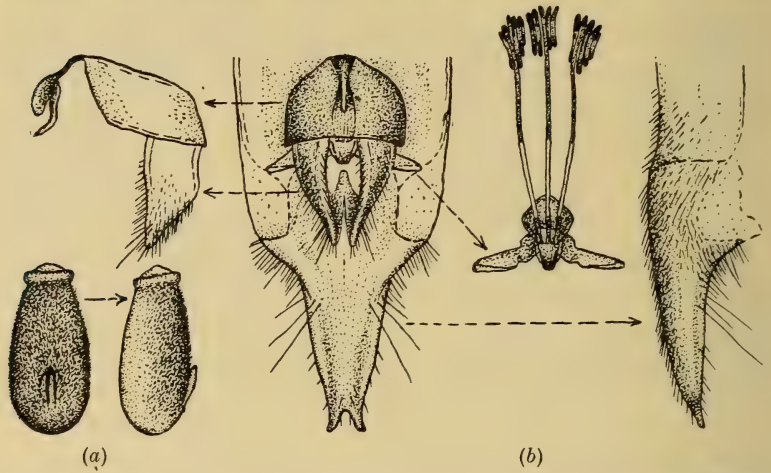
S. snowi Adams.

(P. 156, Kans. Univ. Sci., Bull. iii, 1905.)

A ♂-specimen, determined by Adams himself, and two ♀♀ (one of which has the greater part of the abdomen missing) are in the South African Museum. There is no doubt that the ♀♀ belong to this species and, judging from the description and figure of the genitalia of a ♀-specimen from Thysville in the Belgian Congo, referred to this species by Curran (p. 41, Bull. Am. Mus. Nat. Hist., vol. lvii, 1927–1928) there is also no doubt that Curran's specimen is not a ♀ of *snowi*. A supplementary description, based also on ♀♀, is as follows:—

Body black, with the first antennal joints, ocellar tubercle, base of proboscis above and below, the entire sides of thorax above, broadened at shoulders and above wing-bases, the anterior spiracular part, the hind part of pteropleuron, the sutural part between meso- and metapleural parts, lower part of metapleurae, basal angle on each side of tergite 1, tergites 2–4 and basal half of 5, coxae and legs reddish brown, the dorsum and a line below on each side of tergites 2–5 darkened or blackish; facial region, base of antennal insertions, propleural callosity, scutellar callosities and outer faces of front and middle tibiae and tarsi ivory yellowish; pubescence with the hairs on antennae entirely black, those on face sericeous, the pubescence on thorax, pleurae, scutellum, tergite 1, sides of tergites 2–5 and towards apical part of club silvery white, that towards hinder part of pteropleuron rather longish and tuft-like, that on apical half of segment 5 and that predominantly on 6 of club blackish, that on outer sides of front and middle tibiae and tarsi brilliantly silvery; wings tinged smoky brownish, not quite so dark as in *macilentus*,

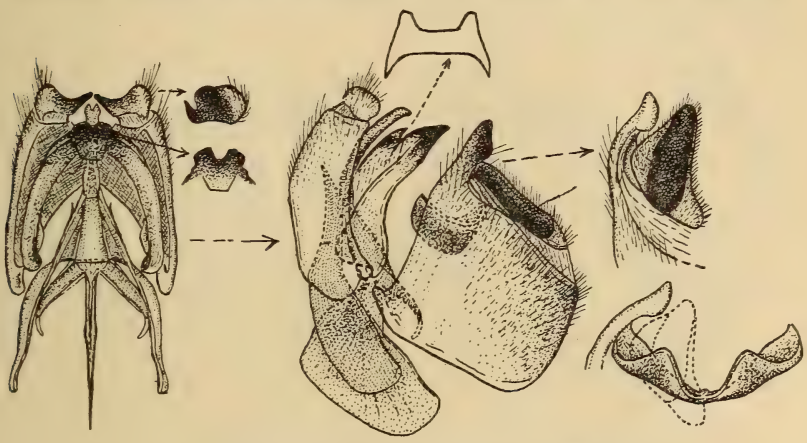
namaquensis, *leptogaster* and *fumosus*, more like those of *barnardi*, slightly darker and more brownish towards costal part and base especially in ♀♀, with the veins very dark brownish to blackish brown, with only 2 submarginal cells present and with a tendency for vein between them to be bent at right angles to third longitudinal vein, with the first posterior cell distinctly narrowed apically, sometimes tending to be closed, with the squamae yellowish and silvery-haired; halteres with brownish stalks, the knobs dark brown to blackish



TEXT-FIG. 320.—(*a*) Dorsal (or ventral) view of egg of ♀ *Systropus snowi* Adams. (*b*) Ventral view of last sternite of ♀ *Systropus snowi* Adams, with last tergite removed to show genital lamellae and hidden tergite in position. Side views of these structures and a dorsal view of genital plate and coiled processes also shown.

brown above, pale yellowish below. *Head* with the eyes in ♂ in contact for a long distance, a little more than 4 times as long as tubercle, in contact for a shorter distance in ♀♀, only about half as long as in ♂ or only about 2 times as long as tubercle; antennae with joint 1 about 2½ times as long as 2, but slightly shorter in ♀♀, with 2 rather long, a little shorter in ♀♀, a little more than half as long as 3 in ♂ and a little less than half as long as 3 in ♀♀, with 3 scalpel-blade shaped, the apex pointed and slightly directed outwards; proboscis rather long, about 5 mm. long; palps yellowish, rather long and practically smooth. *Abdomen* with segments 2–4 forming the stalk, the club rather elongate; genital segment of ♀ (text-fig. 320, *b*, ventral view, with the tergite removed to show the genital lamellae and hidden tergite in position, lateral view of last sternite, side view of genital lamellae and dorsal view of the genital plate and 3 coiled

processes when the genital lamellae and hidden tergite are removed) with the last sternite produced, chitinous, horny, not divided but bifid apically. *Egg* taken from dried ♀ (text-fig. 320, *a*, dorsal or ventral and side view) about ¾ mm. long, narrowed apically, with a distinct rim-like apical part constricted off, slightly dorso-ventrally flattened and having a slit-like pore on one side, which in profile appears raised, with the side in which the pore is situated covered with short and dense spinule-like hairs and the



Text-fig. 321.—Parts of hypopygium of ♂ of *Systropus snowi* Adams.

other side practically smooth; an apical cap or opercular plug is also present. *Legs* without any spines on hind femora below and with these femora also comparatively long; callus-like area on outer basal side of front femora very finely aciculate. *Hypopygium* of ♂ (text-fig. 321, showing side view of combined hypopygium and last tergite and to the left a view of the structures with the dorsal tergite removed) with the apical joint as shown in the figures (apical, lateral and ventral views), ending in a curved spine or beak, its outer part convex; aedeagal process long and slender, bifid apically; accessory processes reduced (*see* upper figure in outline); ramus bilobate apically; last tergite with the apical prongs shortish, lobate and dilated apically, with the terminal plates triangular and the callus-area broad and prominently developed, as long as plates, with the chitinous band inside last tergite as shown in lower right-hand figure.

Length of body: about 17–18 mm.

Length of wing: about 11–11½ mm.

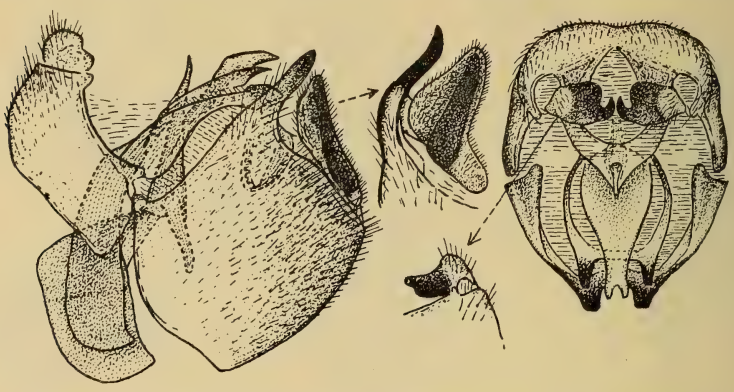
Locality.—Rhodesia.

4 ♂♂ *S. zuluënsis* n. sp.

(Syn. = *snowi* Bezz. nec Adams, p. 105, Ann. S. Afr. Mus., vol. xviii, 1921.)

One ♂-specimen of this species was determined as *snowi* by Bezzi. Superficially this species has a very great resemblance to *snowi*, but differs in certain important details as given in the key.

Body with the antennal joints 2 and 3, greater part of proboscis, disc of thorax, scutellum, mesopleuron, sternopleuron, metasternum,



TEXT-FIG. 322.—Side and apical views of hypopygium of ♂ of *Systropus zuluënsis* n. sp.

tergite 1, segments 6–8 (club) black, the dorsum of stalk darkened above; greater part of first antennal joints, base of proboscis below, the sides of thorax above broadly, broader at shoulders and above wings on each side, the anterior spiracular part, posterior half of pteropleuron, sutural part of mesopleural part, entire metapleural part (only lower part in *snowi*), tergites 2–4 and entire 5 and not half of 5 as in *snowi*, and the legs reddish brown; face and facial part, propleural callosities, scutellar callosities, anterior coxae in part and to a certain extent the outer faces of front and middle tibiae and tarsi ivory yellowish, the tibiae and tarsi, however, not so conspicuously yellowish as in *snowi*; pubescence with intermixed silvery hairs above on first antennal joints and not entirely dark as in *snowi*, the general pubescence on body also slightly longer and denser, more conspicuous than in *snowi*, that on front and middle femora also apparently paler; wings also tinged smoky greyish or greyish brown as in *snowi*, becoming slightly darker towards costal part, with the veins very dark brownish, more blackish brown along costal part, the first posterior

cell narrowed to a lesser extent and also with only 2 submarginal cells present; halteres with the stalks brownish and the knobs very dark blackish brown above and very pale below. *Head* with the eyes in ♂♂ in actual contact or contiguous for a distinctly shorter distance, only about 2 times as long as ocellar tubercle, then very gradually diverging a little before more rapidly diverging; antennae with joint 1 also about 2½, or a little more, times as long as 2, with 2 about half, or very little less as long as 3 and with 3 also scalpel-shaped and pointed; proboscis slightly shorter, about 3–3½ mm. long. *Legs* also without any spines on hind femora below and with callus area on front femora also microscopically aciculate. *Hypopygium* of ♂ (text-fig. 322, showing side and apical views of combined structures) resembles that of *snowi* but differs in having the aedeagal process broader basally, the accessory processes longer, more developed and joining on to the basally directed aedeagal strut on each side, in having the apical processes of ramus longer and more broadly separated, the apical prongs of last tergite longer and sharper and in having the chitinous band inside last tergite more strap-like and not produced into 2 prominent apically directed lobes as in *snowi*.

The species is on the whole also slightly smaller than *snowi*.

Type in the South African Museum.

Length of body: about 13–14 mm.

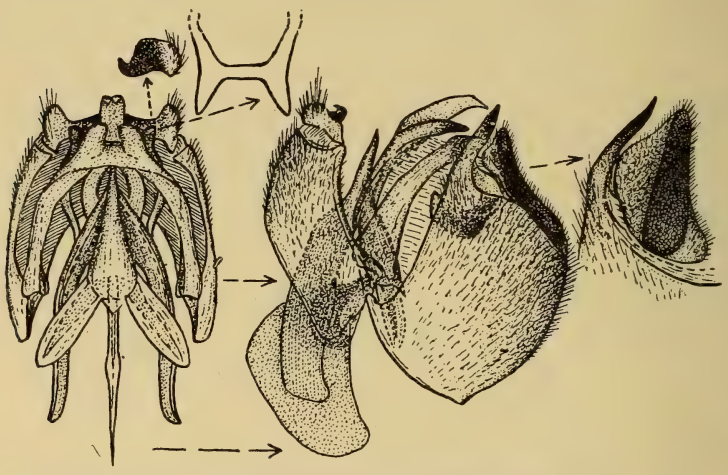
Length of wing: about 8–8½ mm.

Locality.—Zululand: Mfongosi (Jones, Dec. 1911) (Type); (Jones, May 1916).

1 ♂ *S. fumosus* n. sp.

Body for the greater part black, with the first antennal joints obscurely, a large humeral spot on thorax above on each side, a large spot above wings on each side, extending to post-alar calli, the anterior spiracular part, the sutural part between mesopleurae and metapleurae and lower part of metapleurae yellowish to reddish brown, the spots on thorax more reddish, with tergites 2–4 and half of 5 yellowish, but blackened above and with a blackish line on each side below; apical part of frons, the face and genal parts, propleural callosity, scutellar callosities, front parts of front coxae and outer faces of front and middle tibiae and tarsi ivory yellowish; legs yellowish brown, the femora, especially hind ones, and the last 4 tarsal joints brownish above, the tarsi and hind femora above even blackish; pubescence with the hairs on antennal joints, those in two bands on disc of thorax and on scutellum discally and medially

behind, the scaling more or less discally above on tergite 1 and on stalk above, on apical half of segment 5, predominantly or entirely on segments 6 and 7 and the scaling above on hind femora black or blackish, the rest of the hairs on face, head below, thorax above, on pleural parts, metasternum, sides of tergite 1 and the scaling on sides of stalk and the pubescence towards apex of club as well as that on outer sides of front and middle tibiae and the sparser scaling on hind femora below silvery, the hairs on pteropleuron posteriorly tuft-like;



Text-fig. 323.—Parts of hypopygium of ♂ of *Systropus fumosus* n. sp.

wings very darkly infuscated as in *macilentus*, dark smoky brownish, becoming darker in costal cell, base of marginal cell and at base, with the veins dark blackish brown and even darker along costal veins, with only 2 submarginal cells present and with the first posterior cell narrowed apically, with the squamae yellowish and white-fringed; halteres with the stalks dark brownish, the knobs black above in basal half, pale ivory yellowish in apical half and below. *Head* with the eyes above in actual contact for quite a long distance, about 3 times as long as ocellar tubercle, slightly divergent in front of tubercle and then gradually diverging towards apex from end of contiguous part; antennae with joint 1 nearly 3 times as long as 2, with 2 a little less than half as long as joint 3, with 3 scalpel-blade shaped, rather pointed apically. *Abdomen* with segments 2–4 forming a stalk. *Legs* without any spines on hind femora below and with the callus-area in basal half on outer side of front femora microscopically rugulose. *Hypopygium* (text-fig. 323, showing a side view of com-

bined structures, a view of the hypopygium with the last tergite removed and a dorsal view of terminal plate) with the apical joints ending in a curved beak as in *snowi* and *zuluënsis*; aedeagal process bifid apically and basally divided to encircle aedeagus; accessory processes pointed and lobe-like (shown in outline to right above of left-hand figure) connected to aedeagal struts; apical part of ramus ending in two blunt lobes; last tergite with the callus-area on terminal plates long, broad, well developed and almost coarsely faceted and with the chitinous band inside last tergite as in *snowi*.

Type in the South African Museum.

Length of body: about 14½ mm.

Length of wing: about 8 mm.

Locality.—Portuguese East Africa: Inhambane (Lawrence, Jan. 1924).

Superficially this species resembles *leptogaster* Lw., but may at once be distinguished by having only 2 submarginal cells, shorter and slightly darker wings and broader reddish spots, not yellowish ones, on thorax laterally.

S. sanguineus Bezz.

(P. 103, Ann. S. Afr. Mus., vol. xviii, 1921.)

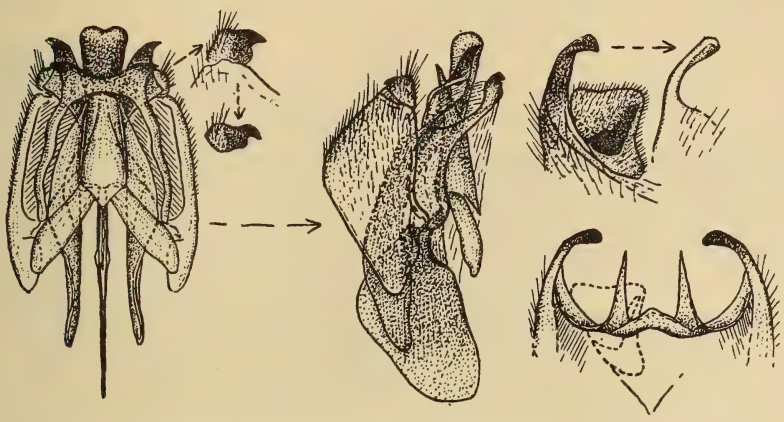
The description of this species, the type of which is in the South African Museum, was based on a ♂-specimen. A good series of both ♂♂ and ♀♀ before me enables me to supplement Bezzi's description. The chief diagnostic characters are:—*Body* with the first antennal joints, face and upper parts of genal region, the sides of thorax above broadly, narrower base of thorax, propleural callosities, sutural parts between mesopleuron and sternopleuron and also between metapleurae and mesopleurae, the pteropleuron, the entire metapleurae, base of tergite 1, segments 2–5 and base of 6 and legs reddish, the stalk slightly darkened above and with a black line on each side below and the greater part of front coxae and trochanters, apices of hind tibiae, the hind tarsi and last 4 joints of the other tarsi also blackish, there being no ivory yellowish on propleurae, front coxae and front and middle tibiae, only the scutellar callosities and lower buccal rims yellow; pubescence with dark hairs on entire antennae, on face, on head below, with short brownish pubescence mostly on black parts of disc of thorax above, on scutellum, with blackish or dark, fine, scale-like pubescence on entire abdomen, the hairs towards apex of abdomen also black, that on pleural and metasternal parts, tergite 1 and mostly

on sides of thorax above silvery white, that on legs in form of blackish scaling on hind femora above, short blackish scale-like pubescence on front and middle femora and tibiae, there being no brilliant silvery pubescence on the latter; wings not greyish hyaline as stated by Bezzi, but distinctly dusky, tinged smoky or cinereous, darker towards costal part and base, distinctly much darker and more dark brownish at base, in costal cell, first and second basal cells, enclosed third submarginal cell, greater part of marginal cell and even at base of first posterior cell and at base of axillary cell in ♀♀, this darker anterior part more or less distinctly marked off from less infuscated part, somewhat similar to that of *crudelis*, with the veins very dark blackish brown, with 3 submarginal cells present of which the third cell (formed from apical part of first one by a cross vein) is smallish, with the vein between it and normal second submarginal cell arising almost at right angles from base, then much curved or bent posteriorly before passing to costal border, the third cell thus markedly narrowed apically, giving it a characteristic shape (text-fig. 324), with the first posterior cell not narrowed apically, with the squamae dark brownish. *Head* with the eyes above in ♂♂ in actual contact for a long distance, at least 3 times as long as tubercle, then almost contiguous for a distance about as long as tubercle before diverging apically, subcontiguous in ♀♀ or very nearly touching, the space being about as broad as front ocellus for a distance about 1½–2 times as long as tubercle, the frontal triangle being thus distinctly longer than in ♂♂; antennae with joint 1 on the whole relatively much shorter than in any of the known species and distinctly more so in ♀♀, about 5½–6 times as long as 2 in ♂♂ and about 4½ times as long as 2 in ♀♀, with 3 also relatively shorter, about ⅓ or a little more, as long as joint 3 in ♂♂, about ¼, or less than ⅓ as long as 3 in ♀♀, with joint 3 thus slightly longer in ♀♀ and bluntly pointed; proboscis about 2¼–3 mm. long; palps with distinct, though sparse, fine hairs. *Legs* with 2–3 black



Text-fig. 324.—Apical part of wing of *Systropus sanguineus* Bezz., showing shape of third submarginal cell.

spines on hind femora below just before middle, with the callus-area on outer basal half of front femora microscopically and aciculately punctured and, viewed from side, with a very fine whitish tomentum. Genital segment of ♀ with the last sternite elongate, scoop-like, much longer than in *crudelis* (cf. text-fig. 318), the sides curled up and enclosing the genital lamellae, the apical margin truncate and not emarginate as in *crudelis*. *Hypopygium* of ♂ (text-fig. 325, showing the structures as seen from side and from above when last tergite is



Text-fig. 325.—Parts of hypopygium of ♂ of *Systropus sanguineus* Bezz.

removed and also the apical prongs, terminal plate and chitinous band inside last tergite) with the aedeagal process inflated apically; accessory processes triangularly leaf-shaped and twisted; ramus much broadened basally on each side, where it joins on to basal part, broadened apically and with an outwardly directed spine on each side; last tergite with the apical prongs curved inwards and upwards apically, somewhat flattened, with the callus-area on terminal plates somewhat irregular in outline, indented on outer side and broad basally and with the chitinous band inside last tergite shaped as in *macilentus*.

Length of body: about 12–15 mm.

Length of wing: about 7–9 mm.

Locality.—S.W. Cape Province, Cape Flats and Stellenbosch. (British, Transvaal and S. Afr. Museums.)

This species is easily recognisable from the descriptions and cannot be confused with *leptogaster* Lw. or even with *macilentus* Wied. It is probable that this species is the one which Schiner and Karsch con-

fused with the true *macilentus* (*see* under *macilentus* in this paper) and which Enderlein renamed *Coptopelma schineri* n. n. (p. 70, Wien. Ent. Zeit., xliii, 1926) as the genotype of his new genus *Coptopelma*. Not having seen *sanguineus*, Enderlein referred the latter to his new genus *Coptodicrus* (p. 91, loc. cit.). The species *clavatus*, described by Karsch (p. 657, Zeit. Ges. Natur., liii, 1880) as coming from the Cape, may also prove to be the same as *sanguineus* Bezz., in which case Karsch's name would have priority.

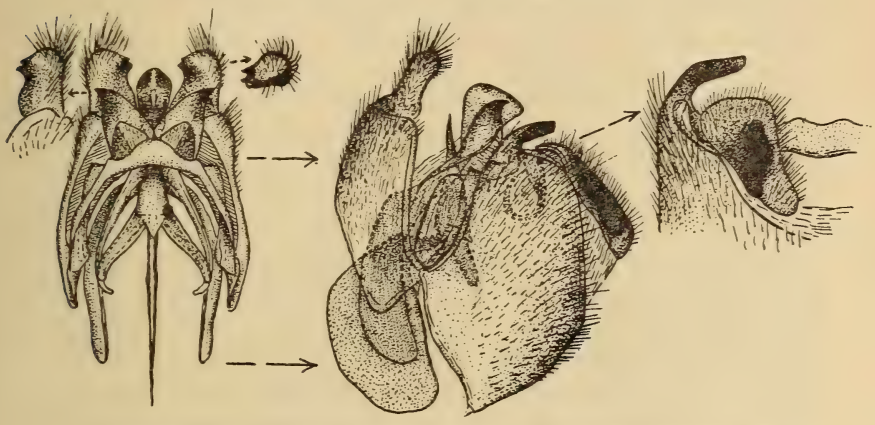
S. leptogaster Lw.

(P. 200, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 121, The Bombyliidae of the Ethiopian Region, fig. 8, 1924.)

Enderlein (p. 70, Wien. Ent. Zeit., xliii, 1926) referred this species to his new genus *Symballa*. Having been in doubt as to the identity of the *macilentus* of Schiner and *clavatus* of Karsch, Bezzi refers both as probably belonging to *leptogaster*. From Schiner's notes on the wing-venation of *macilentus* Schin. (nec Wied.) it is, however, obvious that he was acquainted with *leptogaster* and that his *macilentus* is not the *leptogaster* of Loew. On the other hand, it is more likely that *clavatus* Karsch is identical with *sanguineus* Bezz. (*see* under *sanguineus*) than with *leptogaster*. The chief characteristics of *leptogaster* are:—

Body with the thorax predominantly black; front part of frons, face, buccal region, a narrowish transverse elongated spot on each side above in front of wings, the posterior calli, the humeral part, the anterior spiracular part, the propleural callosity, the scutellar callosities, the front coxae and the outer faces of front and middle tibiae and tarsi ivory yellowish (the narrow, elongated, transverse, yellowish spots on each side of the thorax distinguish this species from all other known South African species with 3 submarginal cells, there being no extensive red on sides as in most other species); first antennal joints, base of proboscis below, posterior part of pteropleuron, sutural part between meso- and metapleurae and extreme lower part of metapleurae reddish; abdominal segments 2–5 yellowish brown or reddish, usually blackened or darkened above and with the brownish or reddish hind femora also darkened or even blackened above by dark scaling, the hind tibiae and tarsi and last 4 joints of the other tarsi also blackish; pubescence predominantly silvery whitish as described, but that on antennae and across occipital part, just behind ocellar tubercle, blackish, the fine ones on disc of thorax and tergite 1 above

dark brownish in certain lights, the fine scale-like pubescence on sides of stalk silvery, that above black, that on club predominantly blackish, but with some intermixed paler and more sericeous gleaming hairs towards apex, with the pubescence on legs predominantly blackish, that on outer sides of front and middle tibiae conspicuously silvery or sericeous, that on hind femora below and also to a certain extent on outer sides of front ones finer and sparser but also silvery; wings distinctly tinged dusky or smoky brownish in both sexes, not hyaline as in ♂-*crudelis*, the costal cell and base appearing darker, with the



Text-fig. 326.—Parts of hypopygium of ♂ of *Systropus leptogaster* Lw.

veins very dark blackish brown, with 3 distinct submarginal cells present (cf. fig. 8, p. 122, Bezzi, loc. cit.), with the first posterior cell tending to be slightly narrowed apically, with the squamae opaquely yellowish. *Head* with the eyes above in ♂♂ touching or in contact for a distance at least 3 times length of ocellar tubercle, slightly diverging basally before tubercle and in front of contiguous part, at first gradually diverging for a distance subequal to length of tubercle before the margins diverge more rapidly, contiguous in ♀♀ for a shorter distance, the frons longer; antennae with joint 1 about 3, or a very little more, times as long as 2, with 2 about half as long as 3 or in ♀♀ sometimes shorter, with 3 bluntly rounded apically. *Abdomen* with segments 2–4 forming the stalk; the last sternite in ♀♀ not produced, not much longer than the opposing tergite, its apical margin indented medially; genital lamellae sometimes projecting posteriorly beyond last sternite as a narrow, pointed, horny process, composed of two contiguous lobes. *Legs* without any spines on hind femora below and with the callus on front femora minutely and

microscopically rugulose. *Hypopygium* of ♂ (text-fig. 326, showing side view of combined structures in middle and to the left a view of hypopygium from above with the last tergite removed) with the apical joints elongated, flattened on the inner side above and below and ending in 2 shortish spines (best seen in the apical view to right of left-hand figure); aedeagal process inflated apically and triangular in shape from side; accessory processes ending in sharp beak-like points; ramus with the basal half of limbs on each side broadly ovate and the apical part as shown in the figures; last tergite with the callus-area on terminal plates also irregular and indented in outer margin, with the apical prongs finger-like, curved inwards and upwards and with the chitinous band inside last tergite strap-like.

Length of body; about 15½–18 mm.

Length of wing: about 10–11 mm.

Locality.—Natal, Portuguese East Africa, and North and East Transvaal. (In British, Transvaal, Durban and South African Museums.)

This species is probably slightly variable, and one specimen, from P.E. Africa (Masiene) in the South African Museum, differs from the typical ♂♂ in being darker, in having the yellow markings on thorax more obscure, the abdomen markedly black above, only segments 2–4 yellowish on sides, segment 5 being entirely black like rest of club and not reddish brown as in the typical form and with the third antennal joints distinctly longer and quite 2½ times as long as second joints.

S. marshalli Bezz.

(P. 118, The Bombyliidae of the Ethiopian Region, 1924.)

Of this species there is only represented a single ♀ in the collections before me. It can be easily determined from Bezzi's description, and is remarkable in that it simulates members of the Vespid-genus *Belonogaster*. It is also the largest species in Southern Africa, having a body-length of about 20–22 mm. and a wing-length of about 18½ mm. The species is characterised as follows:—

Body with the red or reddish fairly extensive, the antennal joints 1 and 2, the frons, face, proboscis below and basally above, humeral parts, area above wings and posterior calli on each side, the base of thorax, greater part of scutellum, anterior spiracular part, propleural callosities, sutural parts and pleurae, base of tergite 1, segments 2–5, the apical part of club (in the ♀ at least), the coxae, more than the

apical parts of front and middle femora, more than apical halves of hind femora and the basal halves of tibiae being pale reddish brown; scutellar callosities velvety brownish; pubescence on body, especially on metasternum sparse, much sparser, shorter and apparently finer than in other species, predominantly pale, that on antennae also sparse and short, pale on first joints, that on legs predominantly pale or sericeous, only that towards bases or in basal halves of femora blackish. *Wings* with the base, costal cell, first and second basal cells, basal part of marginal cell and base of first submarginal cell yellowish, the yellowish becoming darker in apical half of marginal cell, in more than apical half of first submarginal cell and also in the cut-off third submarginal cell, all these parts as well as the normal second submarginal cell being tinged slightly mauvish, with the rest of the wings greyish hyaline, with the veins in yellowish parts yellowish, becoming darker towards apex, with the vein separating second submarginal cell from enclosed first and cut-off third submarginal cells bent at right angles basally and with the cross vein cutting off third submarginal cell from first submarginal cell practically in line with this straight basal part, with the first posterior cell narrowed apically and with the discal cross vein very much beyond middle of discoidal cell. *Head* with the eyes narrowly separated above for quite a long distance, about as broad as front ocellus in this ♀ at least; antennae with joint 1 about $4\frac{1}{2}$ times as long as 2, with 2 thus shortish and not much more than $\frac{1}{5}$ as long as 3, with joint 3 thus long, at least subequal in length, or even slightly longer than joint 1, bluntly pointed apically. *Legs* without any visible spines below on hind femora and with the callus-area on outer side basally on front femora relatively much smaller than in the other species, finely rugulose. *Abdomen* with the last sternite in ♀ elongate, scoop-like, but relatively shorter than in ♀ of *sanguineus*, the enclosed genital lamellae broad.

Locality.—Rhodesia. (In the Rhodesian Museum.)

This species was placed by Enderlein first in his new genus *Diaerops* (p. 70, Wien. Ent. Zeit., xliii, 1926) as the genotype, and farther down in the same paper again in his other new genus *Coptodicrus* (p. 91, loc. cit.).

Species unknown to me.

S. clavatus Karsch (p. 657, Zeit. Ges. Natur., liii, 1880) (*see* comments under *sanguineus* Bezz. and *leptogaster* Lw. in this paper).

S. macilentus Schiner (nec Wied.) (p. 134, Nov. Reis. Zool., Theil. ii,

Bd. i, 1868) or *Coptopelma schineri* n.n. of Enderlein (p. 70, Wien. Ent. Zeit., xliii, 1926) (*see* comments under *macilentus* Wied. and *sanguineus* Bezz. in this paper).

The other Ethiopian species, *S. bicuspis*, *rugosus*, *sericeus*, *silvestrii*, *trigonalis* and *trispinosus* of Bezzi and of *holaspis* and *miobrochus* of Speiser, have not been collected or recorded from Southern Africa and are not dealt with in this paper.

Subfam. *Toxophorinae.*

This subfamily, to which at present only the unique genus *Toxophora* Meig. can be referred, is characterised and distinguished from all other subfamilies in Southern Africa by the presence of a distinct and well-developed prothorax, visible in front of mesonotal part as a conspicuous ring or collar which is slightly lower in level than the mesonotum and which also has stout macrochaetal bristles. This pronotal collar thus abuts on the occipital region and not the mesonotum as in all other subfamilies in this first division of the *Bombyliidae*. The representative genus of this subfamily is further characterised by the dense scaling on all three antennal joints, the presence of scales on the costal border of wings, the apical cross vein of the enclosed submarginal cell which is characteristically situated transversely near apex of wing, the somewhat incrassate femora, especially the hind ones, all of which are without any spines in ♀♀ but with some spines on at least middle and hind ones in ♂♂, the well-developed spines and spurs on the tibiae, the conspicuous and often feathery scaling on hind tibiae, the arched or humped body, the arcuately emarginate hind margin of mesonotum, the flattened scutellum, the dense scaling on abdomen and absence of bristles on abdomen, especially above, where the dark and pale scaling is arranged in a conspicuous pattern of patches and spots or longitudinal bands. The *hypopygium* of the ♂♂ also differs from those of genera belonging to other subfamilies in having the apical part of the basal part sometimes produced scoop-like and armed with a brush or comb of flattened bristles or produced into a single, curved, flattened process and in having the part of the aedeagal complex, facing the inside of basal part, produced on each side into a basally directed scapuliform or shoulder-blade shaped process. The aedeagus itself is also different (cf. text-figures). The last sternite, which is reversed and dorsal in position, is armed on each side with a process, reminiscent of similar processes in the *Cyrtosiinae*, *Systropinae* and the Palaearctic *Usia*.

Gen. *Toxophora* Meig.

(Illiger's Mag. f. Ins. ii, 270, 58, 1803; Becker, p. 476, Ann. Mus. Zool. Acad. Imp. St. Petersb., xvii, 1912; Bezzi, p. 128, The Bombyliidae of the Ethiopian Region, 1924; Engel, p. 81, Die Fliegen. d. Pal. Reg., Lief. 67 (Bombyliidae), 1932.)

This genus is unique among *Bombyliidae* and easily distinguished from all other genera in this family by the presence of a very distinct collar-like or ring-like pronotum, which is conspicuously visible in front of the mesonotum. The chief characters of the genus may be summarised as follows:—

Body somewhat elongate, curved, with the abdomen elongate and tapering apically, with the thorax convex in profile, humped in appearance and with the general shape and build of body somewhat resembling that of certain *Hymenoptera* and more particularly that of some parasitic bees, such as *Crocisa* and *Coelioxys*; pubescence in the form of dense, hair-like scaling on pronotal ring, sides of mesonotum and upper parts of mesopleuron, more flattened and broader scaling on sides of frons, antennal joints, head just behind eyes, sides of thorax above, on scutellum, metapleural part, on abdomen above and below, on coxae, femora, tibiae and even on front border of wings basally, with this flattened and depressed scaling very dense on abdomen where it is usually arranged in distinctive and conspicuous patterns of symmetrically arranged patches or spots of pearly white, yellowish chrome or orange yellowish, submetallic deep blue, very dark blackish brown or black scales, with either the pale or the dark ones forming a background, the scaling also very dense and bushy on all the antennal joints, as a white tuft on each side of frons in front, dense and usually pearly white on coxae and dense and white or black on tibiae, those on hind ones especially being dense and feathery, with distinct bristle-like or hair-like pubescence on body much reduced, dense only on occipital region, present as hairs on first antennal joints below, as a fan of bristly hairs on squamae and as somewhat sparse, transversely arranged hairs on venter, with stoutish macrochaetal bristles on body as follows: 2 behind ocellar tubercle, 3 on each side in humeral part of pronotal collar and usually 4 in a row across front margin of pronotal collar, 1 upwardly directed one on mesopleuron on each side in front of wings, 8 on each side of mesonotum of which the 4 front ones are in a row and stouter and 4 are clustered together just above wings, 3 on each side just above wings, 2 on the post-alar calli and 1 usually

on each side across base of mesonotum and a few across hind margin of scutellum, those behind level of wings sometimes strongly developed, with a few bristles on each side of tergite 1 and which are usually white and also usually with white bristles along hind margin of hind coxae. *Thorax* humped in appearance, convex in profile, with the prothoracic or pronotal part well developed, conspicuous, collar- or ring-like and lower in level than the mesonotum; mesonotum with the hind margin arcuately emarginate in front of scutellum and not truncate or straight as in most other genera; scutellum itself rather more flattened than in other genera. *Wings* with the costal cell elongate, longer than in most other genera and with the Sc.-vein very distinct, dividing it into 2 cells, with 3 submarginal cells present, the apical cross vein of the enclosed submarginal cell characteristically situated transversely near apex of wing, with the discal cross vein never before middle of discoidal cell, the apical cross vein of the latter much S-curved, the upper loop sometimes at right angles to first posterior cell, with only 3 posterior cells present, with the anal cell closed and acute apically, provided with a stalk, the upper vein of anal cell characteristically curved to lower vein which has a characteristic kink near apex of the cell, with the alula well developed and lobate, the squama narrow but distinct and with a fringe of fan-like white bristles, with the basal comb represented by flattened, adpressed scaling and with distinct scales even along costal border, with the front part of wings sometimes infuscated or darker than hinder part and with the cross veins sometimes darker or distinctly infuscated or even spotted. *Head* broader than long; occiput not hollowed out and not very convex, the upper part usually with depressed scaling and lower part with bristles; eyes large, with the hind margins not entirely straight but with a gentle curve or sinuosity, the eyes in actual contact above in ♂♂ for a good distance, separated on vertex by about 2 times width of ocellar tubercle in ♀♀, with the inner margins in ♀♀ gradually diverging apically and with the upper facets in ♂♂ coarser than rest; frons small, triangular and slightly elevated in ♂♂, large and more or less brilliantly shining in ♀♀, medially or transversely depressed at about, or just in front of, middle in ♀♀, the apical part behind antennae raised slightly spout-like, with a characteristic tuft of pearly white, flattened scales on each side in both sexes; antennae elongate, characteristic, with the first joints very elongate and close together basally, with the second joints also elongate, always much longer than broad, either shorter than the third, subequal to or even longer than the third, with the third

joints tapering to a point or even to a long, slender, spine-like style, with all the joints covered with dense, adpressed, but sometimes bushy scaling, that on joint 1 broader and flatter and tending to be denser and more bushy on sides, with the upper surface of joint 2 usually free from scaling but covered with gleaming, silvery tomentum giving the joint a grooved appearance, with the scaling on joint 3 more hair-like or even shortly bristle-like; face not very prominent, not very short, broad and bare but with short silvery pubescence or pruinescence on sides; buccal cavity broad, the genae thus narrow, the genae also with silvery pruinescence; palps rather long, somewhat flattened and broadest basally, with shortish hairs and longer ones along sides, the palps not visibly differentiated into distinct joints; proboscis on the whole not very long, finely spinulated, with the labella elongate and with even longer, though apparently sparser, spinules especially below. *Abdomen* elongate, tapering, very densely covered with pale and dark scaling in a pattern of rows of symmetrically arranged patches and spots. *Legs* with the femora rather stout, the hind ones especially being distinctly somewhat incrassate, narrowed basally and apically, without any spines in ♀♀ but with 2 stoutish spines on outer side in basal half and sometimes with 1 or 2 smaller ones on inner side of hind ones in ♂♂, and usually also with shorter spines on the middle and front ones in ♂♂; tibiae with rather conspicuous spines or spicules especially on hind ones and with these spines distinctly grooved, with very dense, flattened, somewhat bushy or feathery and fluted scales, especially on hind tibiae; claws curved down apically and the pulvilli well developed, extending beyond middle of claws. *Hypopygium* of ♂♂ (text-figs. 327–332), as in the case of *Systropus*, appears to act in conjunction with the last abdominal segment and the basal part (Ba.Pt.) of the hypopygium is constantly ventral in position, the opposing sternite (cf. text-figs. 328, 330, and 332 on extreme right) being dorsal or tergal in position. This last sternite (tergite) is attached to each side of basal part of hypopygium by a stoutish, chitinous process (text-fig. 328, T.P., and also shown on sides of basal part in text-fig. 331) arising from near base of last sternite (tergite) on each side as shown in text-fig. 331 and text-fig. 332 on extreme right. This process may be roughly club-shaped, thickened at middle and bifid apically or blade-like, boomerang-shaped and flattened. It sometimes has a tuft of longish, bristly hairs or it may be smooth. The last sternite (tergite) ends apically on each side in a terminal plate (T.T.), probably representing modified last abdominal elements as

in other genera. These plates are usually quadrangular or subquadrangular, but may also be bilobed (cf. text-fig. 330, right-hand figure), the outer lobe with a comb or crown of short spines. The hypopygium itself consists of an undivided basal part (Ba.Pt.), ventral in position and lodging the aedeagal complex. The basal part is often produced apically into a comb of flattened spines (text-figs. 327 and 331) or simply into a medial process or bilobed process, or it may be without any comb or process as in text-figs. 330 and 332. Lodged apically in the basal part is a distinct apical joint (Ap.Jt.) on each side as shown separately in the figures. This apical joint may be flanked on the outer side by another process, which has shortish, stoutish, spine-like hairs directed brush-like towards the apical joint (cf. text-figs.). The aedeagal complex is joined on to the basal part beyond middle on each side by a brace-like or strap-like ramus (R.), which usually forms a flattened process or blinker-like plate, extending from sides of basal part (*see* lateral and dorsal views of the hypopygium in text-figures). The blinker-like plate really consists of the base of the ramus doubled upon itself (cf. text-figs. 327, 330, and fig. 331 to the left), the basal part of which joins on to the process on each side of last sternite (tergite). The aedeagal complex consists of a true apical aedeagal part (Ae.), usually curved towards the basal part; the exit of the penis being between this aedeagal part and a complicated chitinous structure between it and the inside of basal part. This partially chitinous structure is best made out in side views. Basally it is produced on each side into a scapuliform, basally directed, flattened process or plate (Ba.Pr.), which is not really homologous with the basally directed aedeagal process of *Systropus* and other genera. To this process the ramus and aedeagal part are conjointly connected as shown in the figures. Basally the aedeagal part passes into the middle aedeagal part with its usual lateral struts (L.Str.) and a chopper-shaped or subtriangular, pointed basal strut (Ba.Str.), directed towards the inside of the basal part. Near the base on each side of the basal strut there is often a horizontal, lateral, flattened, triangular or wing-like extension (cf. text-figures).

Key to the known South African species of Toxophora.

1. (2) Wings with more than front half very darkly tinged, very dark smoky brownish, the infuscation extending practically to apices of all apical cells, in the discoidal cell and even basal part of second posterior cell; scaling with the long ones on outer sides of first antennal joints extensively silvery whitish, with the dark ones on base of thorax, on scutellum

and abdomen above very characteristically deep purplish or ultramarine blue and with a submetallic sheen, with the medial white scaling on abdomen above very narrow and linear, with a central stripe of dark scaling on venter and the dense scaling on hind tibiae predominantly or entirely very dark or blackish brown

♂ ♀ *coeruleiventris* Karsch. (p. 1036).

2. (1) Wings usually less darkly tinged, and if with the front half very dark, the darker infuscation does not extend into discoidal cell or into second posterior cell or the clearer hinder part is not clearly marked off from dark front part; scaling with the longish ones on outer sides of first antennal joints entirely or predominantly dark or blackish, and if with whitish ones the wings are not so dark, with the dark ones on thorax, scutellum and abdomen above darker and duller even if bluish, with the pale scaling on abdomen above white, whitish or yellow, broader, sometimes much broader and often broken up into spots, without a central stripe of dark scales on venter and with the scaling on hind tibiae with much white or pale ones especially towards base or in basal half . . . . . 3.

3. (4) Wings with a distinct stump or appendix on apical cross vein of discoidal cell, with the discal cross vein at about or only a very little beyond middle of discoidal cell and without any distinct infuscation or infusion on discal cross vein or apical cross vein of enclosed submarginal cell; scaling on sides of antennal joint 1 predominantly white; hypopygium of ♂ (text-fig. 329) with the basal part produced medially and apically into a curved, flattened, bifid process and with the beaked apical joints triangular, shortish and foveately depressed towards base above

♂ *epargyroides* n. sp. (p. 1038).

(Syn. = *epargyra* Bezz. nec Herm.)

4. (3) Wings without any stump or appendix on apical cross vein of discoidal cell, with the discal cross vein distinctly beyond or much beyond middle of discoidal cell and usually with distinct, though often faint, spot-like infuscations on cross veins; scaling on sides of antennal joint 1 entirely or predominantly dark or black; hypopygium of known ♂♂ without a medial narrowish, curved, bifid process apically to basal part, there being either no process or a broadened scoop-like process provided with a comb of flattened, spine-like bristles and with the beaked apical joints usually more elongate and more slender and not distinctly roundly foveately depressed above . . . . . 5.

5. (14) Wings with the front half or part usually distinctly darker than hinder part and usually with distinct or much yellowish or yellowish brown in the darker part, a milky whitish tint, if present, very indistinct and faint; pale scaling on body and especially on abdomen usually with much yellowish or ochreous yellowish ones in both sexes, the sides of abdomen in ♂♂ usually with much yellowish scaling towards apex and if entirely white-scaled in either ♂♂ or ♀♀ the front half of wings is at least much darker or with much yellowish or brownish . . 6.

6. (9) Antennae relatively longer, with joint 2 distinctly much longer, but subequal to 3; wings with the apical part of discoidal cell more subacute, the vein meeting the fourth longitudinal vein more obliquely; scaling

with distinctly more white ones on body in both sexes, that on front and sides of thorax, on sides of abdomen more whitish or entirely white, that on sides of tergites 1 and 2 in ♂♂ and sometimes all the pale bands in ♀♀ cretaceous or pearly whitish and the dark scaling on abdomen above more dark bluish or violaceous, distinctly more extensive, the dark bands so formed much broader in both sexes and extending to near apex where the dark or black spots are much broader and with the scaling on venter predominantly or entirely cretaceous whitish; front femora in ♂♂ with distinct and longish hairs at base below; hypopygium of ♂♂ (text-fig. 330) without any scoop-like apical part to basal part and without an apical comb of flattened, spine-like bristles, with the apical joints very elongate, with the apically directed process on each side of last sternite (tergite) flattened, pruning-knife shaped and bluntly rounded apically and with the apical part of outer lobe of the apical lappet-like segments to last sternite provided with a comb of chitinous spines . 7.

7. (8) Scaling on abdomen with those on sides of all the tergites or on sides to beyond tergite 2 in ♂♂ and along sides and middle in ♀♀ cretaceous or pearly white, that towards apex on sides and along middle above in ♂♂ chrome or ochreous yellowish . . ♂ ♀ *cyanolepida* n. sp. (p. 1040).
(Syn. = *diploptera* Bezz. nec Speis.)

8. (7) Scaling on abdomen with those on sides of tergites 1 and 2 in both sexes cretaceous or pearly whitish, that on spots along middle of abdomen above and on sides ochreous to chrome yellowish in both sexes
♂ ♀ *cyanolepida* n. sp. (p. 1043).
(Slight var. of.)

9. (6) Antennae relatively shorter, with joint 2 distinctly much shorter and distinctly shorter or much shorter than 3, with 3 being sometimes about 1½ times as long as 2; wings with the apical part of discoidal cell distinctly more truncate, the vein more rapidly bent up and meeting fourth longitudinal vein at right angles; scaling with that on thorax in front, sides of thorax and pale ones on abdomen more distinctly yellowish, richer, more chrome or orange yellow, that on sides of tergite 1 pearly whitish and with the dark scaling on abdomen above more black or blackish brown, duller, less purplish or violaceous and distinctly less extensive, the dark bands relatively narrower and more spot-like, the spots on extreme sides of abdomen and in apical part above much smaller, the chrome or orange yellow scaling being much more extensive in both sexes and with the scaling on venter usually more creamy yellowish to distinctly chrome yellowish even if only towards apex; front femora in ♂♂ without any distinct and conspicuous hairs basally below or with only insignificant ones or a spine; hypopygium of ♂♂ (text-fig. 331) with the apical part of basal part slightly produced scoop-like and provided with a comb of flattened, spine-like bristles, with the apical joints distinctly shorter, with the apically directed process on each side of last sternite (tergite) more spindle-shaped, narrowed apically and the apex either bifid or slightly thickened and with the outer lobe of apical lappet-like segment to last sternite not provided with a comb of dark chitinous spines . . . . . 10.

10. (13) Wings with only faint spot-like infuscations or spots on cross veins,

only the discal cross vein and apical cross vein of enclosed submarginal cell being very distinctly dark and with the upper loop of apical cross vein of discoidal cell less rapidly bent upwards; scaling on venter more creamy yellowish to distinctly yellow, sometimes entirely yellow or with yellow scales towards apex . . . . . 11.

11. (12) Wings on the whole less darkly tinged or dusky, the darker yellowish or yellowish brown in front part less dark and the infuscations on cross veins less conspicuous; scaling on body above more ochreous or chrome yellowish, thus paler, that on thorax paler chrome yellowish and with the dark scaling on abdomen discally above in form of two rows of spots, those on tergites 1–3 larger and tending to be separate and with the scaling on venter almost entirely yellowish or ochreous yellowish like that above . . . . . ♂ ♀ *australis* n. sp. (p. 1044).
(Syn. = *maculata* Bezz. nec Rossi.)

12. (11) Wings on the whole darker, more dusky and more darkly tinged, the front part more apparently yellowish brown and the spot-like infuscations on cross veins more distinct and conspicuous; scaling on body above deeper and richer yellowish, deep chrome to orange yellow, that on thorax distinctly more orange yellow and with the dark scaling on abdomen discally above practically only broken up into spots on each side from tergite 4 to apex, that on tergites 1–3 on each side in form of a distinct and continuous black band and with the scaling on venter much paler, almost entirely white or creamy whitish, becoming slightly more yellowish only at apex and much paler than above
♂ ♀ *australis* n. sp. (p. 1047).
(Slight var. of.)

13. (10) Wings spotted, with at least 3 distinct, conspicuous, rounded, blackish spots on discal cross vein, on apical cross vein of enclosed submarginal cell and at apex of discoidal cell respectively and also with smaller infuscations at base of apical cross vein of discoidal cell, at base of discoidal cell and on apical cross vein of second basal cell, with the upper loop of apical cross vein of discoidal cell more rapidly bent upwards at right angles; scaling on venter predominantly and distinctly more pearly whitish . . . . ♂ ♀ *punctipennis* Bezz. (p. 1048).

14. (5) Wings more uniformly cinereous or tinged greyish cinereous and usually not very dark, the front part not distinctly much darker or with more yellowish than hinder part, but rather with a more distinct subopaque milky whitish tint in certain lights, the veins very dark or blackish; scaling with the pale ones on body above and below and on abdomen entirely or predominantly cretaceous or pearly whitish and if yellowish ones are present they are only to be found along middle of abdomen above in some ♂♂, the sides of the abdomen being covered with white scaling . . . . . 15.

15. (16) Abdomen with the dark scaling above having a more distinct deep bluish or violaceous sheen, with the scaling along middle above yellowish in ♂♂ and if white in some ♀♀ the dark scaling has a distinct bluish sheen
cyanolepida n. sp. (p. 1040).
(Some ♂♂ especially.)

16. (15) Abdomen with the dark scaling above more dark blackish brown or

black, dull and without any distinct or obvious bluish sheen and with the pale scaling on abdomen in both sexes entirely cretaceous or pearly white like the rest of the pale scaling on body . . . . 17.

17. (18) Antennae relatively shorter, with joint 2 very much shorter, distinctly much shorter than 3 and with 3 ending more bluntly and not in a long slender style; wings with the upper loop of apical cross vein of discoidal cell more distinctly and more rapidly bent up at right angles and also at right angles to fourth longitudinal vein; white scaling on abdomen in form of elongated, oblique spots on each side of tergites, beginning at base and extending obliquely down to the hind border and of a series of subtriangular spots at bases of tergites along the middle line above and with the rest of the abdomen above and on sides covered with black scaling and with the scales on hind tibiae predominantly black; smaller and more slender species, about 5½–6 mm. long and with a wing-length of about 4–5 mm. . . . ♂ ♀ *obliquisquamosa* n. sp. (p. 1049).

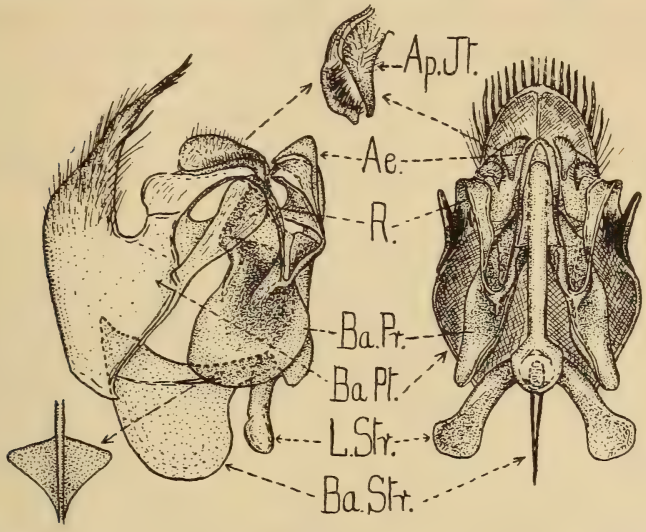
18. (17) Antennae relatively more elongate, with joint 2 only a little shorter than 3 and with 3 ending in a very long, slender and attenuated, spine-like style; wings with the upper loop of apical cross vein of discoidal cell more gradually bending upwards to fourth longitudinal vein; white scaling on abdomen in form of broad transverse bands across apical halves of tergites on each side, the basal halves of tergites being covered with black scaling and of a series of larger, more triangular spots of white scales at the bases of tergites along midline above and with dense white scaling in basal half or basal part of hind tibiae; larger and bulkier species, about 8½ mm. long and with a wing-length of about 6½ mm.
♀ *crocisops* n. sp. (p. 1051).

T. coeruleiventris Karsch.

(Entom. Nachr., xiii, 25.3.1887; Bezzi, p. 106, Ann. S. Afr. Mus., vol. xviii, 1921; Bezzi, p. 135, The Bombyliidae of the Ethiopian Region, 1924.)

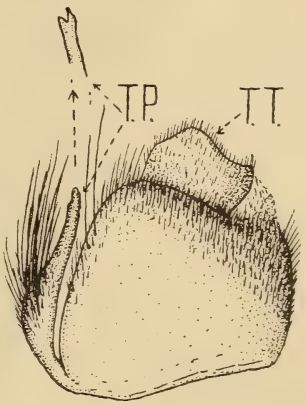
This beautiful species was originally described from Delagoa Bay and appears to be a South East African form not found in the more dry or more arid interior of Southern Africa. It may at once be distinguished from all other South African species by the more or less deep blue integument, the dense, deep purplish or ultramarine blue, metallic shining scales at base of mesonotum, on scutellum and on abdomen above, by the entirely pearly white scaling in form of a narrow, linear, central stripe on abdomen above and much broader band on each side of abdomen in both sexes, by the broad central band of black or dark scaling on venter, especially in ♀♀ and by the entirely or predominantly black or dark scales on hind tibiae. The antennae are characterised by having deep purplish blue scales on the first joints and extensive, dense, pearly white scales on sides of

the first joints, by having the second joints subequal in length to, or even distinctly longer than, third joints and by not having the terminal



Text-fig. 327.—Parts of hypopygium of ♂ of *Toxophora coeruleiventris* Karsch.

style of joint 3 very elongate and slender. The frons in ♀♀ is also more distinctly transversely depressed in front and apparently without a very distinct medial depression in front of front ocellus as in other species. From all the other known South African species it, moreover, differs in having more than the front half of the wings very dark blackish brown or very dark smoky brown, the infuscation extending practically to apices of wings, into greater part of discoidal cell, into basal part of second posterior cell and occupying also the second basal cell and even upper parts of anal cell, with the cross veins also slightly darker. *Hypopygium* of ♂ (text-figs. 327 and 328, showing side and dorsal views and in text-fig. 328 a side view of last sternite (which is tergal in position)) with the basal part (Ba.Pt.) produced apically into a slight scoop-like process, provided with a comb of flattened, spine-like bristles; the process



Text-fig. 328. — Last sternite (tergite) of ♂ of *Toxophora coeruleiventris* Karsch.

(T.P.) on last sternite and other structures as shown in the text-figures.

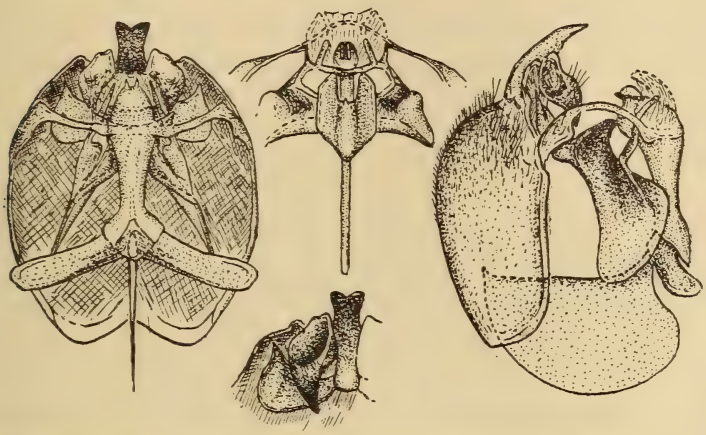
Locality.—Zululand, Transvaal, Delagoa Bay and South Rhodesia. (In the Imp. Institute, Transvaal and S. African Museums.)

1 ♂ *T. epargyroides* n. sp.

(Syn. = *epargyra* Bezz. nec Herm., p. 167, Ann. S. Afr. Mus., vol. xviii, 1921.)

Body black, with the hind margins of abdominal tergites tending to be reddish brown under the scaling; antennae and even sutural parts of pleurae also more obscure brownish; pubescence with the bristly hairs on occiput, anterior angles on pronotal collar, the fan-like bristly hairs on squamae, few bristles on sides of tergite 1, the bristly hairs on venter and the 3 bristles along hind edge of hind coxae whitish, with the hair-like scaling on pronotal collar, anterior and lateral margins of mesonotum also white, with the macrochaetal bristles on thorax and scutellum black, with the more flattened, broader, depressed scaling on sides of antennal joint 1, as a tuft on each side of antennae, along hind borders of eyes laterally, on sides of mesonotum, across hind margin of scutellum and more or less very densely as 3 broadish, longitudinal bands on abdomen and also scaling across hind margins of the tergites, on venter, especially the sides and across hind margins of sternites, more sparsely on pleurae but denser on metapleurae and coxae and on the femora and tibiae cretaceous white and with pearly gleams, that on tibiae especially even opalescent in certain lights, and that on middle band on abdomen more distinctly yellowish towards base, with the rest of the scaling on abdomen above very dark brownish and, as far as this has not been denuded, in form of 2 broad longitudinal bands more or less broken up across the hind margins of the tergites by the tergital fringe or border of white scales and practically without any dark scales on tibiae and a few at extreme apices of hind femora, with the bristles on anterior and middle trochanters and the spines on tibiae, in basal parts of front and middle femora and 2 on outer side of hind femora black; wings greyish hyaline, with a faint opacity in costal and first basal cells, with the veins brownish, the base of costal vein, however, blackish, with the discal cross vein just beyond middle of discoidal cell, with the apical part of discoidal cell truncate, the upper loop of its apical cross vein bent at right angles to fourth longitudinal vein and to rest of the apical cross vein and provided with a distinct and characteristic apically directed stump or appendix

at the latter bend (thus producing a tendency for second posterior cell to be divided into two cells); halteres yellowish, the knobs entirely yellowish. *Head* with the eyes in contact above for a distance at least, or nearly, 2½ times as long as ocellar tubercle; antennae rather slender, with joint 1 a little more than 2½ times as long as 2, with 2 quite half as long as 3, with 3 tapering to a long and slender style; proboscis about 2 mm. long. *Legs* with 1 spine near base of front femora below, with about 6 spines on outer side and 4 on inner side in



Text-fig. 329.—Parts of hypopygium of ♂ of *Toxophora epargyroides* n. sp.

basal half of middle femora and with 2 longer and stouter spines in basal half of hind femora on outer side. *Hypopygium* (text-fig. 329, showing a view from above, another from side and in middle above an apical view of the aedeagal complex and in middle below a view of the right apical joint and accessories) with the basal part produced apically into a medial upwardly bent bifid process, with the ramus not broadly produced into a blinker-like flap on each side where it arises from basal part as in the case of *coeruleiventris* and other species; beaked apical joints foveately depressed above and with a distinct beak.

Type in the South African Museum.

Length of body: about 6 mm.

Length of wing: about 5 mm.

Locality.—South West Africa: Damaraland; Otjituo (Tucker, Jan. 1920).

This species cannot be confused with any other known species from Southern Africa, and may at once be distinguished by the characteristic

apically directed stump or appendix to the part of apical cross vein of discoidal cell which bends up at right angles to fourth longitudinal vein. Identical wing-characters are also present in the Palaearctic *epargyra* and the American *amphitea*. Bezzi (p. 167, Ann. S. Afr. Mus., vol. xviii) referred this species to the species *epargyra* of Hermann originally described from Asia Minor. There is no reason to believe that a Palaearctic species of *Toxophora* occurs in Southern Africa, though superficially there may be a very close resemblance. The species of *Toxophora* are very difficult to separate owing to a remarkable uniformity of wing-characters and scale-pattern on the abdomen. From the description of *epargyra* Herm. (after Paramonow and Engel, p. 82, Die Fliegen. d. Pal. Reg., Lief. 67 (Bombyliidae), 1932) this species differs in having distinctly longer first antennal joints in relation to the second joints and also longer third antennal joints.

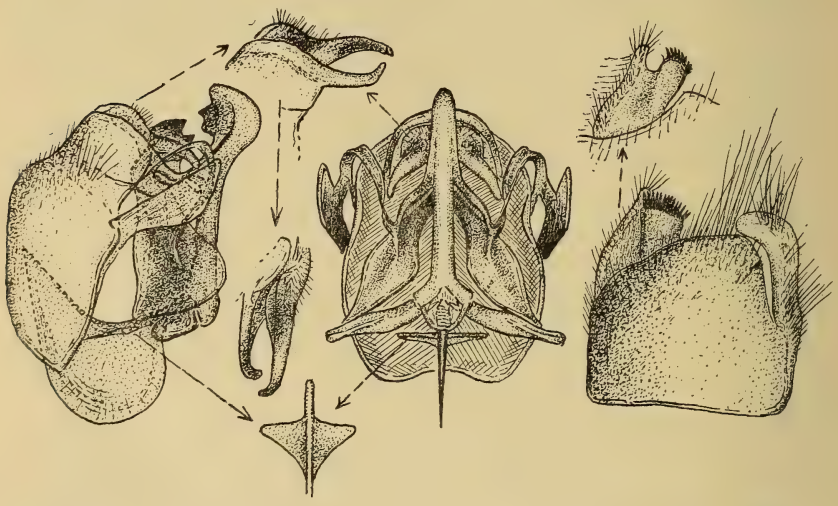
15 ♂♂ 10 ♀♀ *T. cyanolepida* n. sp.

(Syn. = *diploptera* Bezz. nec Speis., p. 106, Ann. S. Afr. Mus., vol. xviii, 1921; p. 134, The Bombyliidae of the Ethiopian Region, 1924; Brunetti, 1924; Hesse, p. 171, Ann. Trans. Mus., vol. xvii, Part 3, 1936.)

Body black; the trochanters and outer apical parts of the coxae and sometimes the extreme hind margins and sides below of the tergites reddish brown or obscure brownish; pubescence with the macrochaetal bristles, the hairs below on antennal joint 1, the short intermixed hairs on the other antennal joints, the spines on tibiae and the spines on femora in ♂♂ black, with the bristly hairs on occiput straw-coloured yellowish to white, the fringe on squamae almost silvery white, the bristles on side of tergite 1, the fine hairs transversely on venter and the 3 stoutish bristles on hind coxae whitish to very pale straw-coloured yellowish, with the pale scaling on body as follows: some cretaceous white ones sometimes on antennal joint 1 above, a dense tuft of longish cretaceous white scales always present on sides of antennal insertions, a patch of silvery white scales on each side behind eyes on sides of head and also towards lower parts of head, some flattened and adpressed straw-coloured to whitish or even slightly yellowish scales on occiput, dense straw-coloured whitish or yellowish, or even cretaceous whitish, hair-like and erect scales on pronotal ring and along sides of thorax in front of wings and along upper part of mesopleuron, flattened, depressed, whitish scales on sides of mesonotum and across hind margin of scutellum, narrower,

flattened and adpressed whitish to distinctly ochreous yellowish scales on disc of mesonotum, usually denser anteriorly, along sides and sometimes as a distinct, narrow central stripe, more evident in front half, with some elongate white scaling on bases of wings above, as a broad longitudinal band of dense pearly white scaling on each side of the abdomen above in both sexes or with that on tergites 1 and 2, pearly white, the rest of band ochreous to chrome yellow in both sexes, as a central, dorsal, usually narrower band of pearly white scaling in some ♀♀ and entirely chrome or ochreous yellow in ♂♂ or in some ♀♀, which central band may be more or less broken up into spots, or even connected to lateral bands across hind margins, as a dense band of pearly white or cretaceous white scaling on sides of venter and across hind margins of sternites, as dense white scaling on coxae, metapleurae, on outer surfaces of front and middle femora and tibiae, predominantly on hind femora and outer basal parts or halves of hind tibiae, that on tibiae sometimes with a distinct yellowish tinge, with the dark scaling occupying most of antennae, across upper part of occiput, sparsely on disc of mesonotum, more densely on scutellum and as 2 broad longitudinal bands on abdomen above, very often resolved into a row of subquadrate spots on each side from tergite 3 to apex, those towards apex becoming smaller where the yellowish scaling across the hind margins are more distinct, with this dark scaling especially on the scutellum and abdomen above very dark deep purplish or bluish black, that on the latter sites often distinctly very dark purplish submetallic bluish, with the very dark blackish brown or graphite-gleaming scales on legs present on upper and inner surfaces of front and middle femora and tibiae, on apical parts or even apical halves of hind tibiae. *Wings* variable in the intensity of their infuscation, the front half and including first basal cell being tinged darkly smoky brownish in some forms and more so in ♀♀, the rest of wings being cinereous or greyish hyaline or the entire wings may tend to be more greyish cinereous or more faintly smoky, the front part being slightly darker and, in some ♂♂ especially, the entire wings may even be only slightly greyish hyaline, with the veins dark blackish brown to very dark, the discal cross vein and apical cross vein of enclosed submarginal cell being always more or less darker or spot-like, the darker infusion along them being distinctly more conspicuous and spot-like in forms with darker wings, with the discal cross vein distinctly or much beyond middle of discoidal cell and with the upper loop of apical cross vein of the latter usually not markedly bent at right angles; halteres yellowish brown to brownish, the knobs very pale yellowish to yellowish white, darkened

basally above. *Head* with the eyes in ♂♂ in actual contact above for a distance at least 2½ times as long as ocellar tubercle, separated in ♀♀ on vertex by a space about 2 times as broad as tubercle; frons in ♀♀ slightly medially impressed just a little before middle; antennae with joint 1 about 1¾–2, or even a little more times as long as 2, usually relatively longer in ♀♀, with joint 2 equal to, subequal to or even a little shorter than 3, provided above with a furrow-like area, bare of long scales but covered with silvery tomentum or fine pubescence,



Text-fig. 330.—Parts of hypopygium and side view of last sternite (tergite) of ♂ *Toxophora cyanolepida* n. sp.

with joint 3 tapering to a relatively long and slender style; genae with short, silvery pubescence; proboscis about 2½–3 mm. long, distinctly and finely spinulated. *Legs* with some longish hairs basally below on front femora in ♂♂, with about 4–7 spines on outer sides of middle femora below in ♂♂ and with 2 longer and stouter spines in basal half on outer side and 1 longish one at base on inner side of hind femora in ♂♂. *Hypopygium* of ♂♂ (text-fig. 330, showing side and dorsal views of hypopygium with the last sternite (tergite) removed, a side view, on extreme right, of last sternite (tergite) and parts of these structures separately) without any process or comb of flattened spines apically to basal part; apical joints elongate and narrow; aedeagal complex with the aedeagus blunt and shaped as shown in figures, the scapuliform basally directed process on each side broad; last sternite (on right) dorsal or tergal in position, with the apically

directed process on each side, flattened, boomerang-shaped, rounded apically and curved upwards apically, with the outer lobe of apical lappets of last sternite (tergite) provided with a comb of slender, chitinous spines.

Types in the Transvaal Museum, paratypes in the British Museum, Imperial Institute and South African Museum.

Length of body: about 8–9 mm.

Length of wing: about 6–8 mm.

Locality.—Transvaal: N. E. Zoutpansberg Distr. (Breyer, July–Aug. 1916) (Types). S. Rhodesia: Bulawayo (Stevenson, 25/12/24); Matopo Hills (Ogilvie, Apr. 1932); Vumbu Mts. (Stevenson, 30/1/24); Bulawayo (Rhod. Mus., 3/9/13). Zululand: Mfongosi (Jones, March–April 1935). Natal: Weenen (Thomasset, Jan.–Mar. 1924 and 1926). South West Africa: Damaraland; Grootfontein (Lightfoot, Dec. 1918); Grt Namaqualand; Aus. (Turner, Jan. 1930). Bechuanaland: Gemsbok Pan (Vernay-Lang. Kal. Exp., 23/4–5/5/30); Damara Pan (Vernay-Lang. Kal. Exp., 15–21/4/30). Nieuwveld Karoo: Teekloof (Fraserburg Distr.) (Mus. Exp., Nov. 1935). Karoo: Murraysburg Distr. (Mus. Exp., November 1935); Graaff-Reinet (Ogilvie, 24–27/10/31). Gouph Karoo: Letjiesbos (Mus. Exp., March 1937). Little Karoo: Willowmore (Brauns, 1/11/10 and 20/12/21). South Karoo: 38 miles E. of Ceres (Turner, 17–25/11/24).

This species is distinctly variable in the intensity of the infuscation of the wings and in the colour of the pale scaling on the abdomen. Apart from less variable forms, at least two forms are recognisable: (1) a typical form with the pale scaling on sides of all the tergites or much beyond tergite 2 in ♂♂ and all three bands in ♀♀ entirely pearly white; (2) a more southern form, usually from Natal and the Karoo, with the pale scaling on sides beyond tergite 1 or 2 and the central band yellow or chrome yellow in both sexes. Transitional forms are, however, also found and in some Karoo-specimens the wings are not very darkly infuscated. This species was referred to *diploptera* Speis. (p. 77, Zool. Kilimandjaro-Meru. Exp. II, Abt. 8–14, 1905–1906) by Bezzi and several specimens before me have been labelled as such by both Bezzi and Brunetti. In view of the fact that superficially the species of *Toxophora* very much resemble each other and that several almost inseparable species are found in Southern Africa, there is reason to doubt that the present species is the same as that of Speiser. Compared with Speiser's description of the original *diploptera*, this species differs in having the third antennal joints equal to or subequal to the second ones, no white scaling on sides of first antennal joints,

by the presence of white scaling on outer surfaces of front and middle tibiae and basal part of hind tibiae and by the presence of distinct spot-like infuscations on discal cross vein and apical cross vein of enclosed submarginal cell, which are not mentioned for *diploptera* by Speiser.

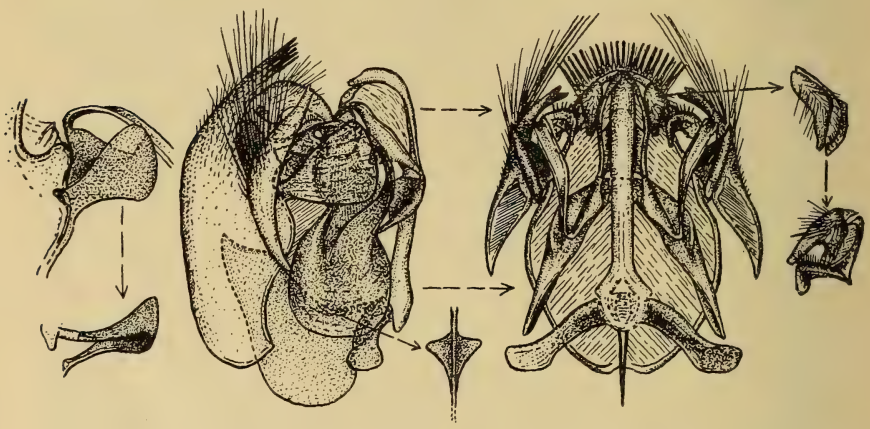
10 ♂♂ 8 ♀♀ *T. australis* n. sp.

(Syn = *maculata* Bezz. nec Rossi, p. 105, Ann. S. Afr. Mus., vol. xviii, 1921; Loew, p. 198, Dipt. Faun. Südafr., i, 1860.)

Body black; the trochanters and outer apical parts of coxae obscure brownish or reddish brown; pubescence with the macrochaetal bristles, the hairs below first antennal joints in both sexes and the trochanteral bristles, the spines on femora in ♂♂ and the spines on tibiae in both sexes black, with the bristles on occiput yellowish to golden or orange yellowish, the fringe on squamae silvery whitish, the bristly hairs on venter, the bristles on side of tergite 1 and the 3 or 4 bristles on hind coxae whitish to straw-coloured whitish or yellowish, with the scaling on antennae entirely or predominantly very dark blackish brown to blackish, the tuft of scales on each side of frons in front pearly or cretaceous white but sometimes with a few dark scales at the base of tuft, some scales across upper part of occiput also dark or blackish, with the dense, suberect, hair-like scales on pronotal collar, anterior part and sides of mesonotum in front of wings and along upper part of mesopleuron yellowish, chrome yellowish to rich orange yellowish, with the adpressed and flattened scaling on occiput and sides of head, around sides of mesonotum and on a central, discal stripe also chrome to orange yellowish, that on lower part of post-alar calli and corners of scutellum white, that on rest of disc of mesonotum above dull blackish brown, with a broad central band of ochreous to orange yellow scales on scutellum, which is continuous with the central band on abdomen above, with the dense, flattened, pale scaling on abdomen predominantly yellow, chrome yellow, ochreous to orange yellow, that on tergite 1 pearly or cretaceous white, the broad, longitudinal bands of ochreous or orange scaling on sides of abdomen joined across the hind margins of tergites by similarly coloured transverse bands of dense scales, with the central, longitudinal band of chrome yellow, ochreous yellow to orange yellow scales above comparatively broad and with the very dark blackish brown to black scaling on abdomen above in form of a broadish band on each side above, resolved into a row of spots beyond tergite 3 or 4, the spots

becoming smaller apically and on extreme side of abdomen above there is on each side another row of black or dark-scaled spots, with the scaling on venter very dense and predominantly ochreous yellowish or yellowish in some forms, only the first sternite at base being cretaceous white-scaled, in others the scaling on venter is more or less whitish towards base, becoming more creamy yellowish to distinctly yellowish apically, with the sparse scaling on mesopleural part, the denser scaling on metapleurae, the coxae, on the outer or hinder surfaces of the front and middle femora and tibiae, the greater part of hind femora and the outer surfaces of hind tibiae cretaceous to pearly whitish, but sometimes with distinct yellowish ones on femora above, with the scaling on upper and front or inner surfaces of front and middle femora and tibiae, extreme apices of hind femora and the inner surfaces of hind tibiae very dark or blackish and with a greasy lustre; wings tinged, cinereous to distinctly smoky, the front part to and including second basal cell distinctly yellowish or amber yellowish to yellowish brown, becoming more smoky again in apical part of marginal cell, the enclosed submarginal cell and the apex, with the veins very dark blackish brown to black, an indication of, or a fairly distinct, spot-like infuscation being present on discal cross vein and apical cross vein of enclosed submarginal cell and sometimes also indicated on apical cross vein of second basal cell, with the discal cross vein distinctly beyond middle of discoidal cell and tending to be double in some specimens and with the upper loop of apical cross vein of discoidal cell tending to be rather rapidly bent upwards and to meet fourth longitudinal vein at right angles; halteres yellowish brown to brownish, the knobs pale yellowish to yellowish white, but darkened or blackened basally above. *Head* with the eyes above in ♂♂ in actual contact for a distance about 2½ times as long as tubercle and separated in ♀♀ by a space about 2 times as broad as tubercle; frons in ♀♀ more triangularly depressed than in *cyanolepida*; antennae with joint 1 about 2–2⅔ times as long as 2, relatively longer in ♀♀, with 2 always shorter than 3, the joint in ♀♀ apparently shorter than in ♂♂, with the silvery pubescent area above distinct, with joint 3 at least 1½ times as long as 2, ending in a comparatively long and slender style, more apparent in ♂♂; genae with the silvery pubescence distinct; proboscis about 2–2½ mm. long and finely spinulated. *Legs* with 1 or 2 small spines at base below on front femora in ♂♂, with a few short spines on middle trochanters in ♂♂, with about 3–5 spines on middle femora below and 2–3 stouter spines in basal half on outer side and 1 or 2 shorter ones on inner side of hind femora in ♂♂. *Hypopygium*

of ♂♂ (text-fig. 331, showing side and dorsal views of the hypopygial structures, with the last sternite (tergite) removed and separate views of certain structures) with the basal part produced apically into an arcuately rounded slightly scoop-like part, provided with a comb of about 17–20 flattened spine-like bristles; apical joints rather bluntly pointed and with the base produced lobe-like (*see* figures to the right, showing apical and obliquely lateral views); blinker-like process on each side of basal part at base of strap-like ramus broad,



Text-fig. 331.—Parts of hypopygium of ♂ *Toxophora australis* n. sp.

as shown in figures to the left; aedeagal complex with the aedeagus bluntly rounded, the scapuliform basally directed process on each side broad; basal strut on the whole more bluntly pointed apically than in other species, the apical margin or edge as in figure; last sternite (tergal in position) with the apically directed process (shown still attached to basal part in the middle figures) not flattened and blade-like as in *cyanolepida*, but narrowed apically and bifid at apex, provided with long and bushy bristly hairs.

Types in the South African Museum, paratypes in the Imperial Institute, British and Transvaal Museums.

Length of body: about 6–9 mm.

Length of wing: about 5–7 mm.

Locality.—Nieuwveld Karoo: Teekloof, Fraserburg Distr. (Mus. Exp., Nov. 1935) (Types): Beaufort West Distr. (Mus. Exp., Nov. 1935): Van Wyk's Vlei (Alston, 1885). Karoo: Murraysburg (Mus. Exp., March 1931 and Nov. 1935): Aberdeen (Mus. Exp., Nov. 1935). Eastern Karoo: Albany Distr.; Resolution (Walton,

22/1/29). Northern Karoo: Aliwal North (Turner, Dec. 1922); Kimberley (Power, 1918). S. Western Karoo: Michell's Pass (Mus. Exp., Oct. 1934); Matjiesfontein (Turner, 14–27/11/28). Southern Karoo: Worcester (Turner, Jan. 1929). Southern Cape: George (Ogilvie, 4–7/11/31).

This species is easily recognised by its rich ochreous to orange yellow scaling on body, by the two broadish bands of black scaling on the abdomen above which are broken up into a row of black spots towards apex, by the lateral row of black spots on sides of abdomen, by the predominantly yellowish or yellow scaling on venter and by the relatively short second antennal joints. The species is variable and occurs in more or less two forms: (1) A typical form with less dusky wings and only faint or less distinct infuscations on cross veins, with more ochreous or chrome yellow scaling on body above, with the dark scaling on abdomen above practically in form of 2 rows of spots right up to scutellum and with the scaling on venter more extensively or even entirely yellowish or yellow. (2) A second form with apparently darker wings and more pronounced spots on cross veins, with deeper and more distinctly orange yellow scaling on body above, especially the abdomen, where the dark scaling is in form of a continuous, fairly broad band on each side to tergite 3 or 4 and only broken up into spots in apical half or towards apex and with the scaling on venter more whitish or even predominantly whitish towards base, becoming creamy to yellowish apically.

This species was labelled as and referred to the Palaearctic *maculata* Rossi (p. 328, Faun. Etrusca., ii, Table IV, fig. 11, 14, 1569) by Bezzi (p. 105, loc. cit.). Apart from the superficial resemblance which this species bears to *maculata*, there is no reason to believe that a Palaearctic species also occurs in Southern Africa. No Palaearctic Bombyliid has been found to occur in South Africa and in all cases of such reputed occurrences, such as *Systoechus ctenopterus* Mik. and *Geron gibbosus* Oliv., I have been able to show that the South African species are entirely different though superficially resembling Palaearctic forms. In both *Geron* and *Toxophora* a number of the species, even within the limits of Southern Africa, are superficially alike and extremely difficult to separate specifically and, judging from the descriptions of Palaearctic species of these genera, the superficial and specific resemblances are of the same nature in Europe and Asia. Not having seen a specimen of *T. maculata* Rossi s. str., it is difficult to find differences between the two species, when such differences have

to be based on inadequate descriptions. Compared with the more detailed redescription of Engel (p. 84, Die Fliegen. d. Pal. Reg. Lief. 67 (Bombyliidae), text-fig. 37 and Pl. II, fig. 26, 1932), *australis* differs from *maculata* in having distinct and often conspicuous spot-like infuscations on the discal cross vein and apical cross vein of enclosed submarginal cell, a character which is not mentioned by Engel or figured by him in his illustration on plate II, fig. 26. Moreover, *australis* has no white scales on sides of the first antennal joints, the undersurfaces of the femora are not covered with orange-coloured scales, the venter is not entirely covered with white scaling, but is either predominantly yellow-scaled or with much yellow scaling towards apex and the last sternite in ♀♀ is not black-scaled. The specimen or specimens referred to *maculata* by Loew (p. 198, loc. cit.) are probably also referable to *australis* n. sp.

T. punctipennis Bezz.

(P. 105, Ann. S. Afr. Mus., vol. xviii, 1921; p. 133, The Bombyliidae of the Ethiopian Region, 1924.)

This species can at once be recognised by the characteristic and distinct spot-like infuscations on the discal cross vein, apical cross vein of enclosed submarginal cell, at apex of discoidal cell, on apical cross vein of second basal cell and also at base of the apical cross vein of discoidal cell, and of these 5 spots the first 3 are very distinct and conspicuous. The species is very near to *australis* and nearer to it than to any other South African species. The chief differences are the spots on the wings already alluded to and the entirely pearly white or white scaling on the venter, no extensive yellow scaling being present. The pattern of ochreous or chrome yellow scaling and spots of dark or black scaling on abdomen above is the same and the thorax also has yellowish to chrome yellowish scales on sides, anteriorly and on a central stripe above, but in some specimens the thorax may be white-scaled. The antennal joints have practically the same proportions. The apical part of discoidal cell of wings is distinctly more truncate than in *australis*. From *maculipennis* Karsch (Entom. Nachr., xii, 56, 10 (1886) et xiii, 24, 2, 1887; Bezzi, p. 130, The Bombyliidae of the Ethiopian Region, 1924) this species differs in not having intensely infuscated wings, in having white tufts on sides of frons anteriorly and extensive silvery white scaling on outer surfaces of legs. The *hypopygium* of the ♂ very closely resembles that of *australis* (cf. text-fig. 331), differing only in having the apical part of

basal part less scoop-like and shorter, less produced, in having the comb of spines less developed, the comb more spread out and the individual spine-like bristles shorter, finer and more slender, in having the basal produced part of apical joints shorter, less prominent and produced, in having the blinker-like flap on each side of basal part at base of ramus more acute or pointed apically, and in having the basal strut distinctly more sharply pointed apically, its apical edge more straight and not so sinuous as in *australis*. The last sternite (tergite) has the apical part of the apically directed process on each side not bifid but more or less thickened and blunt or truncate and the bristly hairs on this process are distinctly finer and very much shorter.

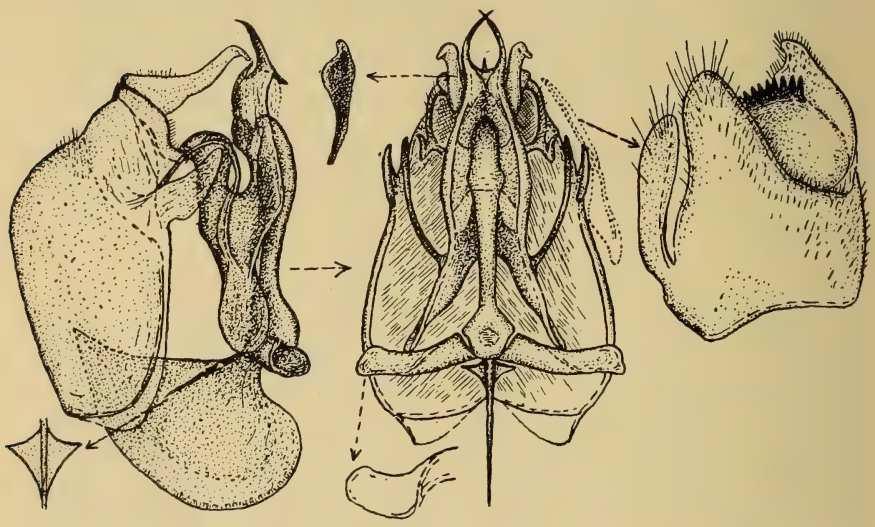
In the Transvaal, British and South African Museums.

Locality.—Natal, Zululand, S. Rhodesia, Damaraland and Ovamboland.

1 ♂ 6 ♀♀ *T. obliquisquamosa* n. sp.

Body, including legs, black; trochanters and apices of coxae reddish brown; the antennae (when denuded), the genae and sometimes the extreme sides of tergites below also tending to be brownish or obscure brownish; pubescence with the stoutish macrochaetal bristles on body and spines on tibiae and spines on femora in ♂ black, with the bristly hairs on antennae below also black, with the bristles on occiput and sides of head whitish, but sometimes with some brownish gleaming ones medially on lower part of occiput, with the bristly hairs on squamae, those on venter and the bristles on sides of tergite 1 as well as those on hind coxae straw-coloured or whitish, with some scales on antennal joint 1 above, the tuft on each side of antennae, the patch on head behind laterally, the dense, hair-like scaling on pronotal collar, sides of mesonotum, on mesopleuron, the flattened ones across hind margin of scutellum, the dense and adpressed, flattened ones on sides of tergite 1 and as oblique patches on sides of tergites 2–7 (each extending from base obliquely down the side transversely across to hind margin of each tergite), those broken up into a row of central spots along midline on abdomen above occupying the bases of tergites but more or less as a central line or stripe just behind scutellum and towards the apex and sometimes continued on to scutellum, those across hind margins of last few abdominal tergites, those densely on sides of venter and across hind margins of sternites, those on coxae, metapleurae, the outer surfaces of front and middle femora and tibiae and on hind femora cretaceous

white, with pearly or opalescent gleams on sides of mesonotum and on mesopleural parts, with the dark scaling on antennae, upper part of occiput, on disc of thorax and greater part of abdomen not occupied by white scaling, on the upper and inner faces of front and middle femora and tibiae, the apices of front and middle tibiae, on the apical parts of hind femora above and on entire hind tibiae very dark deep blackish brown to almost black especially on abdomen, but having



(*a*) (*b*)

TEXT-FIG. 332.—(*a*) Side and dorsal views of hypopygium of ♂ *Toxophora obliquisquamosa* n. sp. with the last sternite (tergite) removed. (*b*) Side view of last sternite, showing apical lappet, the outer lobe of each of which is provided with a comb of spines.

a deep violaceous brown to bronzy violaceous, even burnished, sheen or lustre in certain lights, appearing now paler and now almost black as the insect is moved about, the almost black violaceous, however, dominant; wings tinged faintly smoky or greyish cinereous, with a faint subopaque whitish tint in certain lights, the front half not darker as in most of the other species, with the veins very dark blackish brown to black, the cross veins only very slightly, or scarcely, darker than the rest, with the discal cross vein much beyond middle of discoidal cell, with the upper loop of apical cross vein of discoidal cell very rapidly bent upwards, practically at right angles to fourth longitudinal vein; halteres yellowish to yellowish brown, with yellowish knobs the upper basal part of which is distinctly darkened or blackened, more extensively darkened in ♂. *Head* with the eyes

in contact above in ♂ for a distance about 2½ times as long as ocellar tubercle; the interocular space in ♀♀ about 2 times as broad as tubercle; frons in ♀♀ with a more or less triangular depression in front of front ocellus and in front half of frons; antennae with joint 1 about 3, or even a little more, times as long as 2, with 2 thus relatively short, with 3 distinctly longer, about 1½–2 times as long as 2, ending rather bluntly, more blunt than in other species and not prolonged into a long and slender style; proboscis about 2 mm. long. *Hypopygium* of ♂ (text-fig. 332, *a*, showing a side view and a dorsal view, the last sternite being removed) with the basal part not produced apically; apical joints elongate slender (*see* apical view in middle), curved upwards from middle, practically smooth; ramus from basal part narrow and the blinker-like lappet from its base shaped as shown in left-hand figure; aedeagus produced apically into 2 spines, the true aedeagus, however, represented by a short spine-like process below them; the basally directed process on each side of aedeagal complex narrowish; last sternite (text-fig. 332, *b*, side view) dorsal in position, produced basally on each side, where it is joined on to basal part, into a flattened process, with the apical lappet on each side of last sternite divided into 2 lobes, the outer one of which is more chitinous, ending apically in a row or comb of ctenate spines.

Types in the British Museum.

Length of body: about 5½–6¼ mm.

Length of wing: about 4–5 mm.

Locality.—S. Western Cape Province: Worcester (Turner, Dec. 1933) (Types). Southern Karoo: Matjiesfontein (Turner, 1–18/12/1928). S.E. Cape Province or Eastern Little Karoo: Albany Distr.; Resolution (Walton, 30/11/28) (in the Transvaal Museum).

This species is very easily recognisable by its entirely white scaling on body, oblique white patches on abdomen, entirely dark scaling on hind tibiae, faintly smoky or cinereous wings and rather bluntly pointed third antennal joints. It can only be confused with the following species *crocisops* n. sp., from which it differs by the characters given in the key and under that species.

2 ♀♀ *T. crocisops* n. sp.

Body and legs black; trochanters yellowish brown and genae also obscure brownish; pubescence with the macrochaetal bristles, the bristly hairs below the first antennal joints, some of the bristles on sides of tergite 1, some of the bristles along hind edge of hind coxae